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ORIGINAL ARTICLES.

MANAGEMENT OF FEVER IN CHILDHOOD.[1]

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By fever we understand an abnormal elevation of the body temperature continued throughout the day, or if not continuous, at least intermittently repeated, due to some infection, some local inflammatory process, or to some unexplained disturbed state of the nervous system, and presenting the phenomena of rise of temperature, quickened circulation, marked tissue change and disordered secretions.

No symptom of disease was more carefully studied by the ancients than the temperature as estimated by the rate of the pulse, and Hippocrates based his prognosis upon the height of the temperature. From the time of Galen and Aristotle down to long after the discovery of the circulation of the blood by Harvey, the heart was believed to be the source of this heat, and it was variously thought to be due to an overproduction, to obstruction to the flow of the vital spirit, to evil spirits, and to various circulating humors.

The chemical era, however, finally recognized that the heat was due to oxidation, and hence the production of heat was not limited to any one organ, but was generated in all parts of the body.

Sanctorius, of Padua, and Galileo, toward the close of the sixteenth century, invented thermometers. These were first made of alcohol, but Halley in 1680 recommended the use of mercury in thermometers, and Fahrenheit first presented his in 1720, and Celsius his centigrade in 1742. Boerhaave, in the early part of the eighteenth century, was probably the first to use the thermometer in fever, and his practice was ably elaborated by his pupil Dr. Hann, but the thermometer did not come into general clinical use until Gavarret, in 1839, and twenty years later, Zimmermann, Traube and Wunderlich urged its advantages.

Since this time we have swung from an overestimate of the prognostic value of the height of the temperature to the recent belief that its greatest importance lies in its diagnostic advantages, and as a day-to-day indicator of the progress of the disease.

Before we can well understand the management of fever we must comprehend the pathology, and before we can well understand the pathology we must comprehend the normal mechanism of animal heat. The sole cause of this heat is a chemical process, a combustion of food substances by the oxygen taken in by the animal.

About four-fifths of the total body-heat is produced in the skeletal muscles, through an oxidation whereby oxygen is absorbed and carbonic acid given off, though the processes passed through are probably much more complex than mere oxidations. The other one-fifth of the animal heat is furnished by the secreting glands and alimentary canal during digestion; hence the additional ability to withstand cold after a hearty meal. Even the thermometer in the mouth will show a higher reading just after a meal than before. During acute fevers, glandular activity and digestion are at a low ebb, and almost the entire heat-production in these conditions is probably due to oxidation or changes in the muscular system,—hence the wasting.

Any muscular or mental activity, or the taking of food, will slightly raise the temperature, though external surroundings do not much affect the temperature of adults. But the babe because its equilibrium regulating apparatus is undeveloped, and the convalescing adult because his is impaired, are easily made colder or warmer by sudden changes of the external air and by internal disturbances.

A word as to the physiology of heat-regulation: The equilibrium of the body temperature must be governed by the relation of the heat-loss to the heat-production, and as the one increases so must the other, and all of this mechanism must be under the control of some finely adjusted nerve-governor. Various theories have been offered, ranging from McAllister's three centers, *viz.*, a thermogenic, or heat-producing center; a thermolytic, or heat-dispersing center, and a thermotoxic, or heat-controlling center, to Schaffer and Moore's belief that the vasomotor mechanism in the medulla oblongata is sufficient to arrange all regulation of heat-loss to heat-production. There is no known structural difference before or after the heat-regulating power has developed, but this power appears to be associated with the control over the skeletal muscles and blood vessels.

Now as to the pathology of fever: Its cause must be an overproduction of heat or a diminished loss of heat, or both. This may be due to anything that interferes with the vasomotor regulating apparatus, or to anything that increases chemical activity, be it grandular, muscular, or metabolic.

Probably most fevers are due to poisoning from some source, the character of the fever of course depending upon the kind of poison. Anything that irritates or excites the brain may interfere with heat-regulation and cause fever to occur. This is especially noticeable in convalescents and

[1] Read before the Practitioners' Club, December, 1903.

infants, as too much excitement, overeating, etc., causes a return of fever in the convalescent, or a febricula with the cause unfound in the infant, and all meaning a vasomotor ataxia, or a thermotoxic power impaired or undeveloped.

A malarial paroxysm is perhaps the best type of the immediate stoppage of heat-loss, with a consequent sudden enormous rise of temperature. As the infected red blood corpuscles burst from the presence of the matured plasmodia, the first impression on the nervous system is to cause a sudden irritation of the vasomotor centers, and a resultant contraction of the peripheral vessels, and the symptom is a chill more or less pronounced. The internal temperature, perhaps partly from the poison, certainly largely from the obstructed heat-loss, rises rapidly and often to a great height, which is sustained until the now superheated skin and overstimulated sweat glands begin to pour out a profuse perspiration and the heat-loss first exceeds and then equals heat-production and the normal equilibrium is once more established.

Brasch has examined the spinal cord of a number of persons suffering from fever, and found that the outline of the ganglion cells were rounded, that they appeared swollen, and were much paler than normal. The swelling extended to the protoplasmic processes. These results are thought to contradict those of Juliusberger and Meyer, who found only a collection of fine granules in the center of the cell. On the other hand, the changes correspond closely with those described by Goldscheider and Flatau as a result of experimental febrile conditions. These changes disappear very rapidly if the fever subsides, as appears to have been the case in one spinal cord from a patient suffering from pneumonia. In hectic fever these changes do not occur.

It is possible that if fever persists for a sufficient length of time retrograde changes may take place.

Under the head of general treatment sleep is a very important point, and must not be disturbed, except in conditions of sepsis and depressed brain action. In both these there is no sound sleep, but sopor, which should be interrupted. In sepsis (as diphtheria and others) this rousing from sopor is an absolute necessity. Unless they are aroused frequently, to be fed sufficiently, and stimulated freely, the patients are apt to die. Besides, in most of the cases, the temperature is not high, and there is no contraindication to feeding on that account.

If, on the other hand, the fever is a continued one, or even continuous for a few days, we must then analyze the conditions. Is the amount of fever due to the germ, to the local inflammatory conditions, or to the disease *per se?* If it be any one of these, our first duty is to keep the patient cool and quiet. And how important quiet is when we consider that every excitement causes restlessness, and this means muscle movement through which heat-production is increased.

It will frequently be necessary to give hypnotics, not only for the brain-rest, but for the good to be obtained from absolute muscle-rest. The bowels should be kept carefully cleaned out, not alone for the relief of the liver, and therefore of the blood, but also to prevent fermentation, decomposition and reabsorption of all the products of bowel infection.

Before we consider the medicinal management of fever—that is, of lowering the temperature—we should analyze its causes, carefully note the immediate effects on the individual, whether dangerous to the organism or not, consider the probable future of the fever, and also question if this is not nature's method of combating the toxicity of the germ or germ products. In the first place a high temperature, that is, 104° F. or more, whether in a test-tube or artificially produced in infected animals, is not conducive to the activity of many germs, notably the pneumococcus or the bacillus of Eberth.

Whether in the human animal a temperature of 104° to 105° F. kills off the above germs rapidly, or better forms antitoxin to combat them, would be hard to decide, and certainly it would be hard to convince us that a temperature of 104° F. or above was desirable in pneumonia or typhoid fever. The first question to ask in considering treatment of a case is, Is this temperature high enough to antagonize with remedial agents or not? If high, is it dangerous to life either immediately or remotely? We all know that the system can sustain for a short time a temperature of 105°, or even 106° F., without danger or damage, while a long-continued temperature of 101° F. is serious to the heart, muscles and nervous system.

With a short-lived fever, as that of a malarial paroxysm, or influenza, if it is high it may cause some symptoms that are very unpleasant, and which may call for treatment, but the fever, as such, requires no treatment. If we now decide that this fever is in excess of that due to the disease *per se,* we must seek the additional cause, and with each disease we know where to seek its local manifestations.

In the varied local inflammations it would seem to indicate pus, as in appendicitis, pleuritis, synovitis, otitis media, etc.

The medicinal management of fever must be governed by each individual case. Strychnine, caffeine, cocaine and atropine all raise the temperature by increasing muscular and cerebral activity, and the latter by reducing heat-loss by preventing perspiration. Alcohol, nicotine and morphine diminish temperature; the first two by relaxing the blood vessels and increasing perspiration, and the last by preventing all glandular and molecular activity.

Clinically, then, with high fever we should stimulate with alcohol, but with depression we should stimulate with strychnine. Antipyrin is the most efficient agent in depressing the temperature, but the profuse perspiration that it causes is often very prostrating. Acetanilid does not cause as profuse sweating, but is more directly

depressant to the heart, hence it is well to combine with it a little caffeine or other heart tonic.

Phenacetin is the safest of these three so far as depression is concerned. If the temperature still keeps too high, we can in short fevers use the coal tar products in proper doses a few times, perhaps, carefully noting the effects on the heart, but generally the use of cold in some form is more satisfactory.

This leads me to speak of the hydrotherapeutic management. A carefully regulated ingestion of ice or cold water also tends to diminish the temperature. In young children and infants, where they are not much prostrated, the rectal irrigation with the patient in the Sims' position gives good and immediate results. In cases where there is great prostration the ice cap to the head or the sheet pack may be employed. Given as follows it produces the minimum amount of shock. After the removal of all clothing take a sheet dipped in warm water, and wrap carefully and smoothly about the child; over this a second sheet wrung out of cold water is to be applied. After the application of the second sheet gentle friction with the hands to prevent capillary engagement is indicated.

When the outer sheet becomes slightly warm, cold water can be rubbed over by means of a sponge. In the application of this treatment two symptoms should be constantly kept in mind. One is the character of the breathing, and the other is the tendency to cyanosis. Should the breathing become irregular, or the lips blue, during the application of this treatment the child is to be removed from the pack and placed between warm blankets. The application of this treatment will require from ten to fifteen minutes. At the end of this time the child is to be rubbed until the skin is dry and has a good healthy glow. The repetition of this treatment will depend upon the recurrence of fever, and its influence upon the patient. In cases where the fever has been complicated by convulsions, it is always best, after the child has been placed in bed, to apply cold cloths to the head or use a water bag for a pillow.

If the temperature, even though brief in duration, is so high as to be dangerous to life, as occurs in insolation, in which such a chemical or nervous change has taken place from the external heat, so that heat-loss seems to be impossible, nothing is so effectual or is so likely to save life as immersion in a tub of cold water gradually made colder by ice.

Fever consumes nitrogen, oxygen, carbon, water, and also salts. These losses must be repaired with great care. For fever at the same time diminishes the secretion of saliva, and of gastric juice, probably also of the pancreatic secretion. Besides, it renders the stomach hyperesthetic, consequently nausea and vomiting ensue; it also impairs the absorbing power of all the mucous membranes. Therefore we have a lowered capacity for all kinds of food.

Toxic Fevers.—In no class of cases that a physician is called upon to treat are the results more satisfactory than in those due to products of fermentation, when the intelligent cooperation of the parents or of a trained nurse can be secured. If the parents themselves are lax in discipline, and are unable to govern the child, an efficient trained nurse must be secured, into whose hands the exclusive management of the child should be placed. The essential part of the treatment is that relating to diet. It has been my practice to clear the digestive tract of all fermentative products. Then keeping the fever under control by cold sponging, ice cap or rectal irrigation, I proceed to combat the toxemia by stimulating the organs of elimination, viz., the kidneys, bowels and skin.

I do not believe that in all cases all food must be stopped, but, on the contrary, I do believe that the patient should be sustained by proper food. A small amount of peptone is absorbed both in the stomach and rectum. In moderate fevers some sugar is absorbed, also albumin, and fat in but small quantities, because of its tendency to become acid; starch finds its saliva more or less diminished,—thus its amount must be carefully estimated. Giving in undue quantity may result injuriously by acting as a mechanical irritant, and give rise to fermentation. In ordinary fevers the food must be liquid and rather cool; in vomiting, cold; in respiratory diseases, warm; in collapse, hot. The best feeding time is the remission. In intermittent fevers nothing should be given during the attack except water, or acidulated water, with now and then an alcoholic stimulant. In septic fevers, nothing should be given during a chill except cold or hot water, according to the wishes of the patient, with an alcoholic stimulant. The scheme suggested by Dr. Coit, of this city, for feeding children from twelve months to two years of age who are suffering with fever, seems to me to be a very accurate and simple way in which to manage the diet in these conditions, viz., when the evening rectal temperature is 100° F. or above it, no food except milk containing fat two per cent., proteid one per cent., sugar five per cent., should be employed, or better still, cut down the regular milk formula which the child is taking according to this plan, which should be advanced in a progressive series:

	ozs.	ozs.	ozs.	ozs.
First, boiled regular milk.....	Three	ounces, then 4,	then 5,	then 6, then 6½.
Boiled water...	Two	ounces, then 2,	then 1,	then 1, then 1.
Lime water....	One-half	ounce, then ½,	then ½,	then ½, then 0.

When the evening rectal temperature is below 100° F. advance one step in the above plan each day until full strength milk is again used. When the evening rectal temperature is steadily below 100° F., yet above normal, allow only besides the milk, bread and butter with first, third and fifth meals, and broth and dextrine biscuit with midday meal.

When the evening rectal temperature is steadily normal allow cereals and sterile cream with first and fifth meals, and when this is well borne add

to the midday meal gradually, first starchy vegetables, milk puddings, green vegetables, then eggs, white meats and finally red meats.

I wish to call your attention to the following as one form of fever which defies both medicinal and hydrotherapeutic measures of treatment:

Inanition or starvation fever is a condition depending upon insufficient feeding or lack of assimilation. It is common in early infancy, and would undoubtedly be much more frequently recognized were the temperatures of infants taken more often. It usually develops under one of the following conditions: First, when a child refuses all food, whether from the breast or bottle, or can be made to take only so small an amount that it is not enough to support life. Second, when the food given is entirely inadequate, as when a child is nursing upon a dry breast, or one in which the milk supply is so scanty that it gets practically nothing. Third, when the character of the food is improper. Fourth, when the infant at birth has such feeble powers of digestion, because it is premature or delicate, that it is unable to digest and assimilate enough of the food given to sustain life. Fifth, when a sudden change of food is made to one so difficult of digestion that the child is unable to assimilate it. This may happen after sudden weaning.

The temperature is variable; in the newborn it is often high, but may be subnormal. The pulse is always weak andrapid. The existence of inanition in young infants presupposes only the feeblest powers of digestion and assimilation. If possible a good wet nurse should be secured. This is one of the few conditions in which wet nursing is almost indispensable. If one cannot be obtained, milk containing 1 per cent of fat, ½ per cent. of proteid and 5 per cent. of sugar, thoroughly alkalized and peptonized, should be given. If food is not readily taken it should be given by gavage. This is frequently necessary, as very many of these infants will not take food at all, or only in such small quantity as to be insufficient for nourishment. If there is vomiting this percentage may need to be lowered. As soon as the child begins to improve, one must be careful about increasing the food too rapidly, for renewed vomiting with aggravation of all the other symptoms is sure to follow such a mistake. The temperature should be controlled by cold sponging, cold to the head and heat to the extremities. As soon as the child begins to take food and assimilate it the temperature will disappear.

The first thing to do in case of inanition is to examine the mother's breasts and milk, which usually discloses one of the following conditions: First, overrich milk and quantity abundant. Second, milk poor in quality and scanty with breasts flabby. Third, quality good, amount scanty. Fourth quantity abundant, quality poor.

Proper management of the mother by stimulating her milk making capacity sometimes avoids the unpleasant necessity of a wet nurse, or artificial feeding.

The foregoing example illustrates a form of fever which can be successfully treated only by dietetic measures, and plainly indicates our duty in determining the cause, whether it be toxic, or inflammatory, or some disturbed nerve state.

TWO CASES OF PARALYSIS OF THE ULNAR NERVE; ONE FOLLOWING A SEVERE ATTACK OF TYPHOID FEVER; THE OTHER CAUSED BY PRESSURE DURING OCCUPATION.[1]

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ISOLATED paralysis of the ulnar nerve from any cause is, I should judge, not a frequent affair, in spite of what some authors say to the contrary. Personally I have seen but few cases of it in a somewhat extended neurological experience. In view, therefore, of the fact that the isolated paralysis of any nerve gives unusually favorable opportunities for the study of its relations and actions when in health, and that these relations and actions of the ulnar nerve are particularly striking, it is always worth while to study these individual cases with more than ordinary care.

The causes of paralysis of the ulnar nerve are very numerous, but the great majority of them belong to the category of wounds and injuries. I saw an instance some years ago in which this nerve, along with the ulnar artery, was completely severed by broken glass in the case of a house-painter who fell through a sky-light. As I have said elsewhere,[2] all sorts of cuts from all sorts of weapons may injure the ulnar nerve, because this nerve in some parts of its course, especially near the elbow-joint, is unusually exposed. Gunshot and pistol shot wounds have involved the ulnar nerve. Ballet recorded an instance in which the nerve was injured by prolonged pressure in a glass-blower while at his work. Briddon related a case of sarcoma of the ulnar nerve, which eventually led to amputation at the shoulder-joint and exsection of the scapula. S. Jones saw a case of neuroma of the ulnar, causing paralysis of the nerve. F. J. Lutz reported a case of habitual dislocation of this nerve, and Blattmann wrote on this subject as early as 1851. Dr. H. R. Wharton, of Philadelphia, has also reported a case of dislocation of the ulnar nerve, and has collected 13 cases from the literature.

This accident may be caused by fracture of the humerus or by dislocation of the elbow, or by direct violence, such as muscular effort or violent flexion of the forearm. Fracture of the bones of the upper extremity has more than once caused paralysis of the ulnar. Panas narrated a curious case of such paralysis that did not occur until twelve years after a fracture at the elbow, and was possibly due to a thickening of the nerve sheath caused by irritation from redundant callus. Avezon related a case caused by fracture

[1] Read before the Philadelphia Neurological Society at its regular meeting, December, 1903.

[2] See the author's article on "Diseases of the Cerebrospinal and Sympathetic Nerves" in the Twentieth Century Practice, Vol. XI, from which most of the above references are taken.

of the humerus. Pressure palsy of the ulnar nerve caused during sleep is evidently not nearly so common as this palsy in the musculospiral nerve, and yet it has occurred. Brauns (quoted by Gowers) advanced the theory that when the nerve is compressed during sleep, the pressure is more likely to occur at the shoulder than near the elbow and especially when the arms are held in the position in which the hands are clasped behind the head.

This subject of pressure is of particular significance in all cases that occur when the patient is unconscious, whether this unconsciousness comes from sleep, from drunkenness, from ether anesthesia, or from the poison of typhoid fever. Thus, within the past month I have seen paralysis of both ulnar nerves in the case of a large, stout woman who had been under ether for a long time for a pelvic operation. The palsy, however, was slight and transient, but the complication was doubtless due to pressure, probably with the arms resting on the edge of the table. Gowers refers to a case in a woman due to pressure during a hard and protracted labor.

Isolated paralysis of the ulnar nerve due to a blood infection presents a very different problem. It is not, in fact, easy to understand how a general systemic poison should cause such an isolated paralysis. It is too well known, of course, to need more than mere mention, that a general multiple neuritis is not uncommon from a systemic poison. Thus alcoholism, diphtheria, and typhoid fever may cause a polyneuritis, but except in the case of lead, which often selects the interosseous and some other branches of the musculospiral nerve, the selective action of any systemic poison for one isolated nerve is certainly extremely rare. The selective action of wood alcohol for the ganglion cells of the retina furnishes another example. In the case of typhoid fever some effort has been made to show that this poison has a selective action in some cases for the peroneal and ulnar nerves, and Sir James Paget is usually quoted as authority. But Sir James Paget's original communication on this subject[1] is a mere paragraph and very unsatisfactory from a neurological standpoint. Moreover, he does not mention the ulnar nerve, but only the peroneal or anterior tibial.

Measles has been reported as the cause of a peroneal type of muscular atrophy, in which the lesion is possibly a peripheral neuritis. Tooth[2] described such an affection and suggested measles as a cause, and Omerod[3] reported three cases in one family following measles. But in his case a family predisposition existed, and the cases are not entirely conclusive. I formerly reported a case of widely extended multiple neuritis following typhoid fever,[4] in which case I have since questioned whether excessive alcoholic stimulation and the cold baths may not have been largely responsible. But these cases of polyneuritis leave unexplained how in a very few cases of typhoid fever the ulnar nerve alone is involved.

That isolated paralysis of the ulnar nerve following typhoid fever is a comparatively rare affection, seems to be proved by Liepelt, who has recently gone over the whole literature and been able to find only 16 cases, to which he added a seventeenth. Liepelt studied the reports of 12 of these cases specially, and found that in 9 cases the paralysis began during convalescence from the fever. Pain was an early symptom in 8 cases, and the electrical irritability was diminished in 11 cases. Atrophy was present in 9, and sensation was involved in most of them. In 3 cases the patients recovered and 3 improved.[5]

The case which I desire to report is as follows:

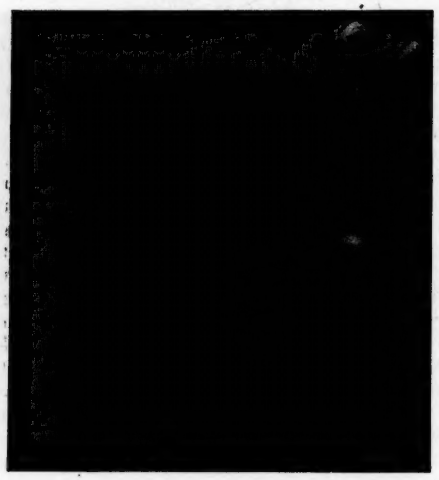
H. F. L.; white, male; aged 29 years, was admitted into the Methodist Hospital as a private patient of Dr. T. L. Coley's in May last. The diagnosis was clearly typhoid fever, and the case pursued a very severe course. Not to go into minute details, which are not essential here, it is enough to say that hyperpyrexia with extreme prostration was a marked feature of the case, and that the patient suffered several alarming hemorrhages from the bowels. The duration of the attack, as shown by the dates of admission to and discharge from the hospital, was about nine weeks, which included a relapse. When the patient was at his worst I saw him in consultation at Dr. Coley's request. At that time the case presented a very grave aspect; the patient was profoundly unconscious, with extreme jactitation of the muscles (subsultus tendinum) and a pulse ranging as high as 144. About that time the hyperpyrexia was at its highest. On one occasion the temperature rose to $106^{2}/_{5}$° F., and for a period of about fourteen hours it was continuously above 105° F. During this crisis the patient was kept up with full doses of whisky, and during the course of the fever he was either sponged or plunged *secundum artem*.

After his discharge from the hospital convalescent nothing was reported amiss by him until some weeks later, when he turned up again with distinct paralysis of his right ulnar nerve. Dr. Coley is quite sure that the patient did not complain of this affection before he was discharged. He himself says that he first noticed the symptoms before he left the hospital, and that these first symptoms were weakness and wasting, but that he had little if any pain either at that time or later. His condition on Dec. 22, 1903, was as follows:

Motor.—There is marked weakening of the grip, and a tendency on flexion at the wrist for the hand to bend toward the radial side. There is partial loss of adduction of the thumb, shown by inability to touch the base of the little finger with the tip of the thumb. There is inability to separate the fingers, with almost total paralysis of the little finger. There is also an approximation to that condition called by the French the *main en griffe*, but this curiously is seen only in the little finger. All these paralyses are exactly such as we should expect from paralysis of the ulnar nerve. That nerve supplies first the ulnar flexor of the wrist—hence the deviation in flexing

the wrist. Next it supplies the inner part of the deep flexor of the fingers—hence an enfeeblement of the grip. It also supplies the interosseous and two inner lumbrical muscles, the actions of which are essential in the finer movements of the small joints, and which muscles flex the first phalanges and extend the second and third phalanges. Hence the tendency to *main en griffe*, which consists in over-extension of the first

Fig. 1.



Paralysis of the ulnar nerve following typhoid fever.

phalanges and flexion of the last two small bones. It also supplies the adductor of the thumb, hence the restriction of motion in that member; and finally it supplies the three small muscles that give flexibility to the little finger, hence the limitation in range of that member. As the two outer lumbrical muscles are not supplied by the ulnar, but by the median nerve, the tendency to *main en griffe* is more marked on the ulnar side of the hand, as is the case very markedly in this patient; in fact, the little finger alone has assumed that position.

The Electrical Reactions.—To faradism the irritability is practically abolished in all the affected muscles. By picking out the motor points and comparing with the sound side it is possible in this case to demonstrate beautifully that the flexor profundus digitorum is partly impaired and the flexor carpi ulnaris entirely so. The essential muscles of the hand are much involved; neither the interossei nor lumbricales contract to the current. This is also true of the adductor of the thumb and of the three muscles (flexor, abductor and opponens of the little finger) none of which responds to faradism. The current, in fact, reveals clearly the extent of the damage.

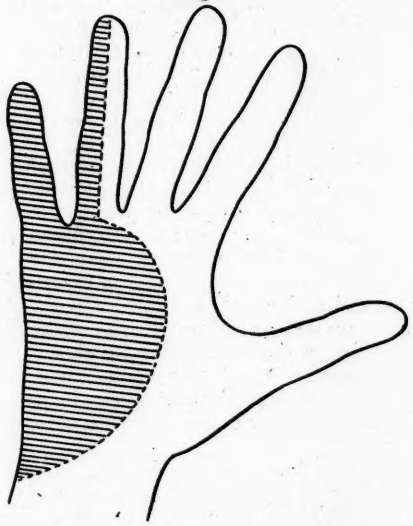
Atrophy.—All the paralysed muscles are much wasted, giving the hand a very characteristic appearance, due especially to the wasting in the interosseous spaces and in the thenar and hypothenar eminences. The flexor carpi ulnaris is also flattened.

Sensation.—There is very marked anesthesia, and this follows the classical lines, as in the diagram. It is complete, however, both to faradism and to touch only on the fingers—the whole of the little finger and the inner half of the ring finger. On the palm there is no tactile anesthesia—answers are correctly made, but to faradism there is still diminution. Thus faradic and tactile anesthesias are not coextensive. It is rather curious that the patient asserts that there is some numbness on the *back* of the hand to the faradic current, but this is probably because the current is so readily transmitted through the whole thickness of the hand that he confuses the anesthesia due to the ulnar and locates it on the dorsum. Tactile sensation is perfect on the back of the hand.

The query arises in such a case as this: Is the lesion due to a blood poison, *i.e.*, the poison of typhoid fever, or is this, and other cases like it, merely a pressure palsy of the ulnar nerve occurring during the delirium and unconsciousness of profound typhoid intoxication?

I believe that the latter theory is the correct one. When we consider the chances that the arm

Fig. 2.



Anesthesia in a case of paralysis of the ulnar nerve following typhoid fever.

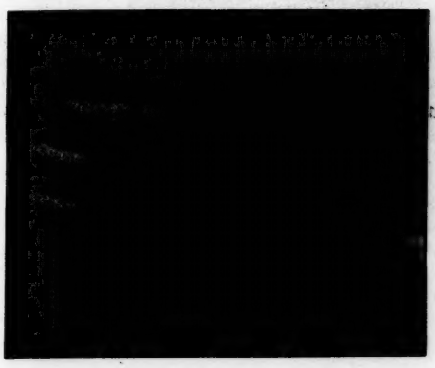
of an unconscious patient may be thus injured by pressure, or by the necessary manipulations in giving him the plunge baths, we must at least acknowledge the probability of such an origin—and this theory is in accord with the fact that all isolated paralyses of the ulnar nerve are, as I have shown, clearly due to trauma or some local lesion.

The second case is one of pressure palsy of the ulnar nerve, and is not unlike the case, already re-

ferred to, which was observed by Ballet, in a glass-worker. It illustrates several points, among them the insidious onset and gradual course, so that the patient did not recognize its true cause; and, second, the absence of involvement of the sensory neurons. This latter observation is in accord with a well known law in neuropathology.

B. M.; 20; white, male; clerk. For a year and a half the patient has been employed as a

Fig. 3.



Paralysis of the ulnar nerve caused by occupation.

clerk in the Pennsylvania Railroad. During all that time he has been writing steadily, and has acquired the habit of leaning on his left forearm, which he places on the sharp edge of the desk. The arm is held in such a position that the edge of the desk is pressed hard and deeply into the ulnar side of the forearm just below the elbow-joint. The point of greatest pressure is about one and a half inches below the inner condyle of the humerus, and just where it is possible to make direct pressure on the nerve after it has passed beneath this condyle and before it becomes covered by the muscular masses of the forearm.

The first symptoms noticed by the patient were slight tingling in the region of the crazy bone, and the beginning wasting of the intrinsic muscles of the hand. He has never had pain in the nerve, nor is there the slightest degree of anesthesia. This latter point has been most carefully tested.

The condition at present is as follows: The wasting is very marked in the interosseous spaces, and in the thenar and hypothenar regions. The power of adduction in the thumb is still preserved to some extent, but the power of the three small muscles of the little finger is lost as is also the power of separating the fingers. Flexion at the wrist is well preserved. There is a slight tendency to the position of the *main en griffe* in the little and ring fingers, but no fibrillation.

The points of chief interest in this case, as already pointed out, are the fact that the pressure has been long continued, and that therefore the symptoms have been of very gradual onset, and are not yet complete. The absence of anesthesia, with the presence of marked wasting, shows how in cases in which the cause acts gradually the sensory filaments may entirely escape.

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APPARATUS FOR NITROUS OXIDE-ETHER ANESTHESIA.

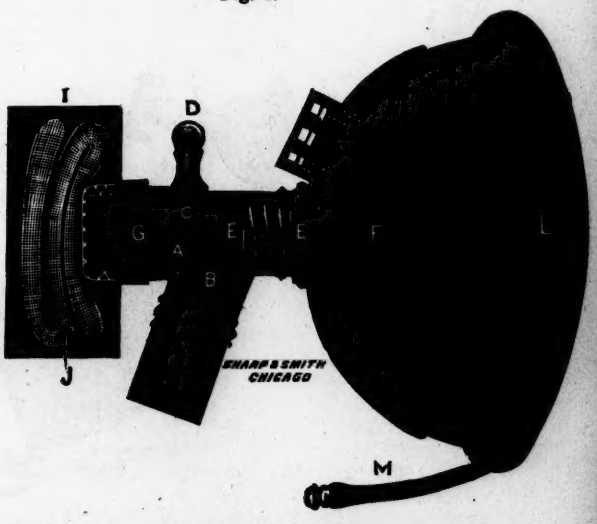
BY WELLER VAN HOOK, M.D.,
OF CHICAGO.

THE advantages gained by preceding ether anesthesia with nitrous oxide are numerous and striking. The patient goes to sleep in from one to three minutes, the beginning of the anesthesia is not unpleasant to the patient, and the total amount of ether required for anesthesia is much diminished. The writer was first impressed by the value of this method when he saw it used in the London hospitals, in 1895.

For some time the writer has used this method in his clinical work as well as in private practice, largely with the skilled assistance of Dr. D. H. Galloway. And the desire to obtain a very simple apparatus has induced him to devise an attachment for an ordinary nitrous oxide face-piece, so that the vapor can be substituted for nitrous-oxide gas at will.

Fig. 1 represents the face-piece in common use, invented by W. W. Harrington, of Carrollton,

Fig. 1.



Ohio. The slide *G* when drawn out allows the patient to breathe air through the apparatus, but when pressed home and held by the spring *H*, the patient breathes nitrous oxide from the bag. The expired air and gas are forced out through the valve *F*. An assistant stands ready to turn on

more gas from the tank so that the bag may be kept as nearly full as desired. When the patient is asleep, which requires about sixty seconds, the cap *I* is slipped over the valve *G*. Ether vapor is then inhaled by the patient, the gauze *J* having been previously saturated.

In practical use, all preparations having been made, the bag filled, and the assistant being ready to turn on more gas as needed, the patient is allowed to breathe air a few times through the valve *G*. When the gas is turned on the patient is informed of the fact. After he has breathed a few times through the ether cap, and respiratory reflexes are abolished, the ordinary ether cone may be substituted for the apparatus. It is most important that air should not be admitted at any time until the patient has been under the influence of ether for several minutes.

An extensive experience with this apparatus has given me confidence in its simplicity and usefulness. By using the 25-gallon tanks of liquid nitrous oxide the anesthetizer can transport the apparatus without prohibitory discomfort.

The following is a technical description of the apparatus:

Fig. 1 shows the external view and internal construction. An opening, *B*, underneath the body of the inhaler, admits the nitrous oxide gas through a similar opening. *A*, in the sliding tube *G*, fitting inside of and projecting beyond the rear portion of the main body. The projecting portion is perforated for the admission of ether by the slipping

Fig. 2.

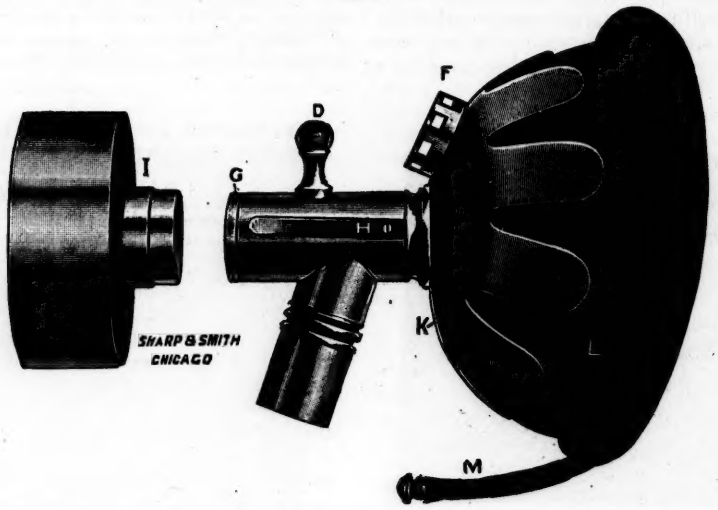


Fig. 3.

on of the container *I* which liberates the sliding tube *G* by lifting the spring catch *H*, at the same time closing the inlet *B* and shutting off the flow of gas. The sliding tube is prevented from rotating by the screw-pin *D*, which works in slot *C*. The inhaling and exhaling valves—the former internal, the latter external—consist of two thin disks of mica, *FF*, which are enclosed in open circular cages. The inhaling valve is opened in respiration by being drawn against the front of the cage, the exhaling valve being closed by the pressure of the outside air. In expiration both disks are thrown against the further ends of the cages, opening the exhaling and closing the inhaling.

The soft rubber face-piece consists of a hood, *L*, with an inflatable edge cushion attached to a metal frame, *K*, which is screwed on to the inhaler. The frame which preserves the shape of the hood may be readily detached for cleansing by unscrewing the nut which holds it to the neck of the inhaler. The cushion is inflated through the nipple *M*. The best adaptation to the face is obtained when it is partially distended.

The pure gum gas-bag with stop-cock, connecting hose and steel cylinder (Fig. 3), completes the apparatus.

A BRIEF REPORT OF FOUR YEARS OF GENITO-URINARY WORK IN THE SECOND SURGICAL DIVISION OF MOUNT SINAI HOSPITAL.*

BY HOWARD LILIENTHAL, M.D.,
OF NEW YORK.

ON the first of December, 1899, the surgical side of Mt. Sinai Hospital was divided into two separate, equal continuous services. The following is a report of what is known as the Second Surgical Division, of which the writer is the attending surgeon and Dr. Joseph Wiener, Jr., and Dr. Charles A. Elsberg, adjunct attending surgeons. This report must of necessity be extremely brief because although the genito-urinary portion of the work has been only about eight per cent. of the total surgical work of the division, yet the number of cases is so great that in spite of their extremely interesting character there is room for only the most superficial discussion. It is our custom, however, to publish in the volume known as Mt. Sinai Hospital Reports every case resulting in death or failure, while only the most interesting or atypical cases among the successful ones are printed in detail. All histories in the present paper are from the year just finished and ending December 1, 1903, those of the other years having been published as stated.

The service is a continuous one, the attending surgeon and both of the adjunct surgeons being on duty the entire year, with the exception of vacation when one man at a time may be absent. A daily visit to each patient is made by the attending surgeon and one adjunct surgeon whose work it also is to attend certain cases of emergency when it is not possible for his superior to be present. The other adjunct surgeon is present on regular operating days to assist or operate as the attending surgeon may require. The adjuncts alternate in their duties every three months.

The total number of genito-urinary operations in the four years was 186 of which 23 were followed sooner or later by death before discharge from the hospital; an apparent mortality of 12.3 per cent. or about 2.3 per cent. higher than the total mortality of the division. In considering this mortality rate it is but fair to say that it has been very decidedly influenced by the fact that patients are rarely discharged from the hospital before the termination of the case. If an operation for malignant disease has been undertaken, for example, unless the wound heals and a local cure has been accomplished the patient is usually permitted to remain until the end, often a matter of weeks or months after the operative recovery.

DISEASES OF THE KIDNEYS.

Disease.	Operation.	Total.	Died.	Total, 1903.	Died, 1903.
Cyst of the Kidney.....	Nephrotomy (transperitoneal).....	1	1	1	1
Calculus in One Ureter..	Nephrotomy	2	1	1	0
Calculus hydronephrosis, Stones in both ureters	Nephrotomy	1	1	1	1
Pyelonephritis	Nephrotomy	3	1	0	0
Pyonephrosis.....	Nephrotomy	4	1	0	0
Suspected Calculus.....	Nephrotomy	2	0	0	0
Chronic Nephritis.....	Nephrotomy	2	1	0	0
Acute Nephritis.....	Nephrotomy	1	1	0	0
Septic Nephritis.....	Nephrotomy	1	1	0	0
Hemorrhagic Nephritis..	Nephrotomy	1	1	0	0
		18	9	3	2
Pyonephrosis.....	Nephrectomy	8	3	3	2
Hydronephrosis, Congenital	Nephrectomy	1	0	0	0
Tuberculous Nephritis...	Nephrectomy	1	0	0	0
Pyelonephritis.....	Nephrectomy	2	0	0	0
Septic Nephritis.	Nephrectomy	1	0	0	0
Abscesses of Kidney, Multiple....	Nephrectomy	1	0	1	0
Sinus after Removal of Calculus.....	Nephrectomy	1	0	1	0
Torsion of Pedicle of Kidney....	Nephrectomy	1	0	1	0
Sarcoma.....	Nephrectomy	1	1	0	0
Hypernephroma...	Nephrectomy	6	3	2	1
		23	7	8	3
Perinephric Abscess.....	Incision and Drainage...	4	0	1	0
Surgical Kidney, Uremia	No operation	1	1	1	1
Pyelonephritis, Gonorrheal.....	No operation	1	0	1	0
Renal Colic.....	No operation	1	0	1	0
		3	1	3	1

*Read before the Genito-Urinary Section of the New York Academy of Medicine on January 20, 1904.

During the year ending December, 1903, there were 51 operations with seven deaths.

At first sight these figures would seem to indicate that an incision into the kidney must be more dangerous than the total removal of the organ. This has not been our experience, however, considering the different conditions for which operation was undertaken. Thus, two deaths following nephrotomy for impacted ureteral calculi were evidently due to anuria present before operation and not relieved by it. Deaths following nephrotomy for acute and chronic nephritis, septic nephritis and hemorrhagic nephritis are also to be expected in the majority of cases.

The oblique incision parallel with the ribs is the one usually employed by us. After a simple nephrotomy the wound in the kidney is partially closed with catgut sutures, a drainage tube being carried down to the pelvis through the parenchyma between the sutures.

A table devised by the writer has been found very serviceable in operations about the kidney, a smooth slightly convex metal rest being so placed that when the patient lies upon his side he can be raised by means of a crank into the proper position. When the operation has been completed, but before the wound is closed, the patient may be slowly let down while the incision is held open with retractors thus fully exposing the depths. Hemorrhage which may appear on release of tension as the body assumes its normal position will be seen at once and can be controlled with ease.

Cystoscopy and ureteral catheterization are practised in nearly every case of suspected renal disease, but it is our opinion that catheterization of the supposedly healthy side may do harm, and it is seldom if ever performed. The X-ray has rarely been of material assistance in determining the absence of calculi.

A history of the fatal nephrotomy in 1903 is as follows:

Case I.—Anuria; Stones in both Ureters; Nephrotomy; Uretero-lithotomy; Renal Decapsulation; Death.

Louis W., sixty-five years old, was admitted to the medical side of the hospital on September 3, 1903, for an illness which had begun ten days before, with severe left renal colic lasting five days and accompanied by dysuria with pain at the end of the penis. For the forty-eight hours previous to admission there had been complete suppression. There had been vomiting but no other uremic symptom. Two hours after admission a catheter was passed and two drops of urine were withdrawn. The microscope showed epithelial cells apparently from bladder and urethra but no renal elements. Treatment was instituted with salts, calomel, hot air bath, pilocarpin and subcutaneous infusion. This proving unsuccessful the patient was transferred the same day to the surgical side where under chloroform anesthesia Dr. Elsberg operated, decapsulating the right kidney and performing ureterotomy for a stone felt in the ureter of the left side. The ureteral opening was sutured, but a large tube was left in the renal pelvis passing through the substance of the kidney which had been previously incised with the hope of extracting the calculus by that route.

Pathological report of a section of the left kidney by Dr. Mandlebaum showed an acute inflammation upon a chronic nephritis. Except for the secretion of a urinous discharge into the packings of both wounds there was no relief. No urine was passed by the natural channel and the patient died four days after the operation.

Autopsy, by Dr. Mandlebaum, showed suppuration of the wounds with pyelitis and chronic nephritis. No peritonitis. Three small stones completely blocked the left ureter about 12 inches from the renal pelvis, and there was no marked change in the ureter at point of impaction.

The following unusual case was not diagnosticated even on operation and things were only cleared up at autopsy, cyst of the pancreas having been suspected.

Case II.—Cyst of the Kidney; Transperitoneal Incision and Drainage; Death.

J. S., fifty-five years old, was admitted July 26, 1903. He was a Russian, but had been living in Roumania, near the border, where swelling of the liver was a common complaint among the population. At home he had kept from two to five dogs about the house with which he and his family were in intimate contact. Syphilis and gonorrhea were denied. He said that he had had a swelling in his abdomen for months which gradually increased in size and that there had been an occasional lancinating pain relieved by hot applications or a bath. Four or five weeks before admission he had complained of severe pain in the mass, not radiating, and of local tenderness which had never been present before. There had been nausea and occasional vomiting. There had been neither fever nor chills. The bowels had been regular. There had been no urinary symptoms.

On examination there was a marked flatness in the fourth space in the midclavicular line, in the sixth space in the midaxillary and in the eighth space posteriorly. The lower border of the liver was palpable in the midclavicular line, 7 cm. below the free border of the ribs. On the left side 5 cm. below the free border of the ribs the liver was also palpable. There was no tenderness. Extending 18 cm. below the free border of the ribs within 4 cm. of the anterior superior spine of the ilium, and extending across the median line at its lower pole for 7 cm. and palpable 12 cm. below the free border on the left side there was a movable, irregular mass. About the center of this mass on the right side there was a smooth round prominence about 6 cm. in diameter, elevating the skin and acutely tender. The mass extended far back into the loin, dense, apparently fluctuating, and moving with respiration. A vibratory thrill could at times be made out. A cousin of this patient

had been operated upon by the writer some months before for echinococcus cyst of the liver.

Operation in the present case was done by Dr. Elsberg on July 28 under chloroform anesthesia. An incision about four inches long was made through the right rectus and extended upward and downward for a considerable distance. When the peritoneal cavity was opened a small amount of clear fluid escaped and a large cystic tumor moving freely with respiration and retroperitoneal in situation was seen. It was evidently not connected with the liver although it extended high up under its lower surface. The tumor consisted of a number of cysts many of which were opened, the contents being allowed to escape. As much of the walls as possible of the largest cysts was extirpated; the entire bulk removed being as large as a child's head. The edges of what remained of the tumor were sewn to the peritoneum. An attempt was made to empty the larger completely by wiping out with towels. During this procedure a mass was found in the right lumbar region. This was removed and proved to be a large calculus. The cavity of the cyst could not be entirely emptied and was packed with gauze. In one of the other cysts there was a small calculus the size of a pea. Mikulicz tampon and dressing were applied with suture of part of the wound. On the seventh day after the operation the cutaneous sutures were removed and on the eighth day the greater part of the wound was found wide open and the intestines exposed. Attempts were made to protect the general peritoneal cavity but without avail and the patient died on August 8.

The pathological report from the autopsy by Dr. Libman revealed a calculous hydronephrosis, general purulent peritonitis and infection of the sac wall. The fluid from the cyst showed serum, jaundiced, turbid, alkaline and of a specific gravity of 1.020. The fluid contained mucin, serum albumin and serum globulin, and gave a very strong peptone reaction. No sugar, no parapeptone, paramucin, ferments, or diastase. The microscopical examination showed many leucocytes, many red blood cells, few leucin crystals, no tyrosin or cholesterin and a faint trace of urea. The sac proved to be a hydronephrosis and showed no remnants of kidney tissue. It was adherent to the liver and head of the pancreas. The wall was trabeculated. The pancreas was negative. The left kidney showed evidences of parenchymatous degeneration.

Nephrectomy is performed by us as a primary procedure in cases of new growth, and in calculous disease when there are numerous stones scattered throughout the organ. A case of primary removal of the kidney for the rare condition of torsion of its pedicle appears on the list of recoveries. In cases of renal tuberculosis with great destruction of tissue primary nephrectomy has usually been done, but in other suppurative cases nephrotomy as a general thing has preceded removal. This gives the patient an opportunity to recover from the effects of sepsis due to bad drainage, so that his condition is more favorable for the severer operation. A kidney, too, which has been found greatly enlarged at the primary nephrotomy has not infrequently shrunk to one-third of its former size before the secondary nephrectomy. Another advantage in the two stage operation is that one may judge much better of the functionating power of the other kidney.

There were six cases of hypernephroma during the four years, intermittent hematuria being the prominent symptom in all. Secondary growths of this type, usually peritheliomatous, are apt to appear in the bones and in the liver. They often pulsate very strongly and in one case the tumor occurring, as it did, in the frontal region, exactly simulated an aneurism, pulsating with all the throbbing sensation of a true arterial dilatation.

Case III.—Stone in Ureter; Nephrolithotomy; Nephrectomy; Cure.

Max K., fifty-one years old, was admitted to the hospital on August 17, 1903, having suffered pain in the left lumbar region for one year. The history of his present illness covered five days. There had been acute onset, with lancinating pain, beginning posteriorly and radiating down the course of the ureter to the scrotum and penis. The attack had been accompanied by vomiting. There had been a chill at the onset, followed by fever. Urination frequent but scanty. When examined there was marked tenderness over the region of the left kidney and along the course of its ureter.

On August 18 Dr. Wiener operated under chloroform anesthesia. The kidney was exposed by the usual incision and was delivered with some difficulty. Palpation revealed a stone at the beginning of the ureter apparently impacted therein. An assistant compressing the renal vessels, an incision was made longitudinally into the kidney and through its cortex. The stone was felt at the mouth of the ureter. In attempting to extract it about one-half an inch of the ureter was torn away with it. No other stone could be found. During the course of manipulation the pelvis of the kidney was opened on its posterior aspect. An attempt was made to find the open end of the ureter with the idea of implanting it into the pelvis but it could not be found. The hole in the pelvis was sutured with catgut and the kidney sewn together with interrupted catgut sutures. The patient made a good recovery from the operation but the urinary fistula refused to close and, on October 13, the writer performed nephrectomy. The kidney was extremely adherent to the surrounding tissues and was delivered with great difficulty. It had contracted to about one-half its former size, and contained a marked amount of connective tissue. Convalescence was uneventful and the patient was discharged well, on November 28.

Case IV.—Perithelioma of the Kidney; Nephrectomy; Cure.

S. H., woman, fifty years old, was admitted on November 5, 1902. She was

married and had had six children and one abortion, her menopause having occurred one and a half years before admission. For three months she had noticed a marked loss of weight and general weakness without pain. There had been some difficulty in passing urine about four weeks before admission and the urination was accompanied by the passage of bright red blood and, for two days following, the urine was very dark in color. On two subsequent occasions she had passed old clots. One week before admission she had noticed a tumor in the left side of the abdomen. There were no disturbances of the bowels and no subjective symptoms by which the tumor could be localized. On admission she was found to be quite anemic and rather poorly nourished. The general physical examination was negative, but on reaching the abdomen a marked asymmetry was noted due to a huge tumor in the left flank reaching to the median line. This mass was fairly elliptical in shape and the long axis ran downward and inward. It had rounded edges and its surface was somewhat lobulated. It seemed to extend above the free border of the ribs. Posteriorly it went deeply into the lumbar region. It was readily balloted. Internally the mass reached well beyond the median line, the lower limit corresponding to the iliac crest. The colon was pushed inward. No intestine was felt in front of the tumor. The consistency of the tumor seemed solid and very hard.

On November 8, 1902, an oblique lumbar incision parallel with the ribs was made by the writer. It was found possible to push the peritoneum forward and deliver and remove the tumor together with the kidney, of which it formed a part. Partial suturing was done with silkworm gut and the immense cavity previously occupied by the tumor was filled with a Mikulicz tampon. The growth was the size of a large cocoanut, the surface irregularly nodular and its general consistency was much softer than was suspected from examination before the operation. There were numerous scattered cysts. The tumor mass on section had the characteristic yellowish granular appearances of hypernephroma. The growth seemed to spring from the entire convexity of the kidney. The pathological report by Dr. F. S. Mandlebaum showed perithelioma with necrosis. Convalescence was absolutely uneventful except that the silk ligature that had been used to ligate the pedicle *en masse* was rather slow to be given off. It came away January 7, 1903, two months after the operation and the patient was discharged well ten days later.

On November, 1903, no local recurrence but a pulsating tumor the size of a pigeon's egg was found in the left frontal region, having apparently eroded the bone over an area nearly as large as a silver quarter of a dollar. A full report of this case will be presented at its conclusion, but it should be here mentioned that incision and thorough curetting after ligation of the left common carotid showed the tumor to be a metastatic perithelioma.

Case V.—Hypernephroma; Nephrectomy; Death.

David S., fifty-two years old, entered the hospital on September 23, 1903. Had lost about 50 pounds in weight during the previous seven months. Had had frequent micturition with intermittent hematuria, considerable blood having been lost. On admission a large balottable somewhat irregular reniform mass was found in the left renal region, extending to within two inches of the median line. Left testicle somewhat enlarged. Operation September 26, by Dr. Wiener. Difficult nephrectomy owing to size of tumor and vascularity of capsule and adhesions. Peritoneum opened. The following day he died of shock and acute anemia. The specimen was of the size of an adult head. It had broken down into the renal pelvis. There was no autopsy.

Two histories of pyemic kidney abscesses follow. The complication of malignant diabetes contributed to the fatal termination in the second case.

Case VI.—Abscesses of Kidney; Nephrectomy; Cure.

Thomas S., aged twenty years, was admitted December 12, 1902. He had had furunculosis for a number of weeks before the onset of his present illness. About six weeks before admission he had complained of dull pain in the left lumbar region. The pain had been relieved by pressure. He also had had rigidity and tenderness in the right epigastric region which had ceased three weeks before admission. The pain in the left lumbar region had been intermittent, and at times very slight. He had begun to notice threads in his urine for the past three weeks. In urinating he had passed clear urine at first but later it had contained threads. He had had evening rise of temperature to 102.5° F. since the onset. The pain in the left lumbar region had been sufficiently severe to demand morphine. Blood examination had shown white blood cells 24,000, red blood cells 4,336,000, hemoglobin 82 per cent. He had been treated by Dr. Manges who sent him into the hospital.

On admission his general condition was found to be fair; he was much emaciated and had the appearance of an individual suffering from chronic sepsis. In the left lumbar region there was a slight fulness, dull on percussion, painful on pressure. On December 13 under nitrous oxide gas an incision into the mass was made by the writer and a considerable quantity of pus evacuated. A body supposed to be the kidney, could be vaguely felt through the wound. Drainage by tube. On December 15 an examination of the urine for tubercle bacilli was made but none found. The symptoms were not relieved by operation, therefore, on December 18, the writer performed a secondary nephrectomy for pyonephrosis and multiple kidney abscesses under gas and ether anesthesia. The twelfth rib had to be resected. It was necessary to perform the entire operation with great rapidity owing to the wretched condition of the patient. The pedicle

was clamped and tied off with heavy silk. The peritoneum was not injured. The kidney measured 8 x 6 x 4 inches. The external margin consisted of the remains of openings into numerous abscesses around the kidney. The external surface was congested, the consistency of the tissues being soft and fluctuating in areas. On section the parenchyma was found completely studded with multiple abscesses varying in size from a pinhead to a walnut. The pus was thick in consistency and creamy yellow in color. Most of the abscesses had distinct walls being sharply defined from the surrounding parenchyma. The pelvis was filled with pus. Many of the abscesses had broken into the pelvis leaving large sloughing ulcerations. The parenchyma of the kidney was pale, cloudy and its markings were almost entirely obscured. It was evidently in a state of advanced parenchymatous degeneration. The capsule was thickened but not adherent. Convalescence was steady and rapid. The ligatures were off on January 1, 1903. On January 19, one month after nephrectomy, he was discharged cured and has remained absolutely well ever since. The pus contained *Staphylococcus aureus.*

Case VII.—Pyemic Kidney Abscesses; Nephrectomy; Death.

Morris S., fifty years old, had suffered amputation of the thigh for diabetic gangrene on May 10, 1903. His recovery had been ideal, primary union having occurred. On June 25, however, after an illness of ten days he was readmitted suffering from symptoms of sepsis and with pain in the region of the right kidney. The urine was clear, containing a few pus cells demonstrated by the microscope. Two per cent. of sugar still present, but acetone and diacetic acid which had been present in large quantities had disappeared.

July 4 under nitrous oxide and ether nephrectomy was performed by the writer; a somewhat enlarged kidney filled with miliary abscesses being removed. The patient rallied from the operation but died of his sepsis four days later.

Case VIII.—Movable Kidney with Twisted Pedicle; Strangulation; Nephrectomy; Cure.

Esther C., aged sixty-five years, had had a sudden onset of pain in the right iliac region seven days before admission. There was frequent vomiting of food and bile. She had been constipated for three days. There was no elevation of temperature and no chills. She had passed about 30 ounces of urine each day, the urine being cloudy with sediment containing pus and few red blood cells but no casts. Her bowels were hard to move, the stools being green and small. She was admitted December 25 having been referred to the hospital by Dr. Hauswirth. Her general condition was poor. Her tongue was dry and coated. In the right lumbar region, above the iliac spine, there was a large, rounded mass, very tender on pressure, but obscured by the rigid contraction of the abdominal wall.

Having diagnosticated an acute surgical abdominal lesion probably connected with the kidney the writer operated at once, making a lumbar incision parallel to the iliac crest and about one and a half inches above it. The mass was aspirated and a small amount of pure blood drawn into the barrel. The perirenal fat was hard, friable and adherent to the peritoneum and abdominal wall. The tumor was found to be the kidney; hard, somewhat enlarged, with its pedicle twisted. It was freed and drawn into the wound. As the number of turns and their direction could not be determined, and as the organ looked much congested, a primary nephrectomy was performed, the pedicle being ligated with heavy silk. The ureter was tied separately with catgut. Through and through chromic gut sutures were employed except at the posterior portion where the skin was strapped. The kidney was somewhat enlarged, its surface dark and covered with hemorrhages. Upon section the cortex was found to be pale, edematous, containing no pus, and showing no dilatation of the pelvis. There were radiating streaks of yellowish pigmentation in the parenchyma of the kidney, where urinary salts had been deposited. The patient developed an hypostatic pneumonia from which, however, she made a good recovery. She was discharged on January 18, the ligature not yet detached; it came away a few weeks later.

Case IX.—Tuberculous Pyonephrosis; Nephrectomy; Death.

Solomon M., thirty-four years old, was admitted March 30, 1903. The family history threw no light upon the case. Had had gonorrhea fifteen years before. About a year ago, after an illness of three weeks with pain in the back, he had been told by his physician that there was pus in his urine.

About two months before admission he had gone through another illness with pain in the left side for about three weeks, then a disappearance of this pain and the occurrence of right-sided pain. About two weeks before admission the pain again became localized in the left side, leaving the right. No other symptoms had been present. Urination normal, four or five times a day. No chills or fever. General examination soon after admission was negative but the urine contained some albumin and a heavy deposit of pus. On April 9 the left ureter was catheterized and the urine examined. It contained a trace of albumin and a considerable amount of pus. On April 21 both ureters were catheterized. The flow from the right side could be markedly influenced by pressure bimanually in the lumbar region. It contained much more pus than that from the opposite kidney and tubercle bacilli were demonstrated in the sediment. April 23 tuberculin test gave positive reaction.

Operation by the writer on April 25, under chloroform. Adhesions were very dense all about the kidney. It became necessary to resect the twelfth rib, and the pleura was accidentally injured and had to be closed by suture. Nephrectomy was done, several inches of the thick gelat-

inous ureter being removed separately. The kidney was six inches long and three and one-half inches wide. It was slightly lobulated and fluctuated in places. Section showed three large discrete necrotic abscesses with many smaller ones.

The operation was performed at about 4 p.m. and at 7 o'clock the wound had to be reopened because of hemorrhage. No single bleeding vessel could be found but from the entire surface where the adhesions had been divided there was oozing, which could not be checked by packing and the patient died of acute anemia at six the next morning. Unfortunately there was no autopsy. The writer is certain that there was no bleeding from any spurting vessel.

DISEASES OF THE BLADDER.

Disease.	Operation.	Total.	Died.	Total, 1903.	Died, 1903.
Cystitis	Suprapubic Cystotomy	9	0	1	0
Cystitis	Perineal Cystotomy	1	0	0	0
Vesical Hemorrhage	Suprapubic Cystotomy	1	0	1	0
Papilloma	Suprapubic Cystotomy	6	0	1	0
Calculus	Suprapubic Cystotomy	9	0	1	0
Calculus	Litholapaxy	1	0	0	0
Tumor	Suprapubic Cystotomy	2	1	0	0
Sarcoma of Bladder and Prostate with Peritonitis	Celiotomy	1	1	0	0
Retention	Suprapubic Cystotomy	1	0	0	0
Vesical Fistula	Cauterization	1	0	1	0
		27	2	5	0
Exploratory Suprapubic Cystotomy		1	0	0	0
Suprapubic Cystotomy in the Course of other operations		2	0	0	0
		3	0	0	0

It will be seen that there were 30 operations upon the bladder, in the four years, with two deaths, both in cases of malignant disease. During the year ending December 1, 1903, there were five operations without a death. But one of the cases operated upon during this year need be here reported in detail. The history follows:

Case X.—Vesical Calculus; Epicystotomy; Cure.

William N., aged eighty-two years, had been discharged after suprapubic prostatectomy performed on March 24, by Dr. Wiener. He was readmitted on October 9 with cystitis and frequent burning urination which had existed for about six weeks. On examination with a sound, which passed easily, a stone was discovered. On October 13 suprapubic cystotomy under nitrous oxide gas was done by the writer and a number of phosphatic calculi, about the size of large date seeds, were removed. It was then learned that, following the former operation, the nurse had for some reason neglected the irrigation of the bladder. On dissolving the calcareous matter of the stones with strong hydrochloric acid, nuclei consisting of bits of tough tissue were left. Convalescence was good and the patient was discharged entirely well on November 14.

DISEASES OF THE PROSTATE.

Disease.	Operation.	Total.	Died.	Total, 1903.	Died, 1903.
Abscess	Perineal Incision	6	0	0	0
Hypertrophy	Suprapubic Prostatectomy.	17	0	6	0
Hypertrophy	Prostatotomy (Bottini)	1	1	0	0
Carcinoma	Suprapubic Curetting	2	1	0	0
		26	2	6	0
Hypertrophy of Prostate. Urinary Sepsis	No operation	3	3	2	2

The total number of operations upon the prostate since December, 1889 was 26, and there were but two deaths; one after a suprapubic curetting for advanced carcinoma and the other, strangely enough, following a Bottini's galvanocaustic prostatotomy. In the last year there were but six operations upon the prostate and none of the patients died. All were suprapubic prostatectomies. We find the records of 17 of these operations during the four years and none of the patients died, all but one making perfect recoveries. The case which did not turn out well will be here reported.

(To be Continued.)

VESICAL RETENTION OF URINE.[1]

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THE single symptom of inability to entirely void the bladder contents, is so dispersed in literature that, when its prompt relief is imperatively demanded, text-book consultation is out of the question. The purpose of the present paper is to summarize the treatment of the symptom, with only so much allusion to its etiological factors as is necessary to decide upon the methods to be employed to relieve the emergency. The ends in view may be best subserved by first reciting the means ordinarily used.

Common Domestic Treatment.—In retention from any cause, provided that danger to life is not imminent, and provided also that the patient is

[1] Read before the Second Annual Meeting of the American Urological Association, New Orleans.

not too unmanageable for temporization (as during alcoholic inebriety) the ordinary domestic inciters to urination may prove successful. They are: (*a*) Exposing the patient to the sound of running water; (*b*) causing him to suddenly plunge one or both hands into cold water; (*c*) prolonged hot sitz-baths or general baths (*quod vide infra*).

If within fifteen minutes these fail, recourse must at once be had to catheterism. If consent to catheterize without general anesthesia is not obtainable, this must be employed.

Not infrequently the production of the emergency instruments induces a tendency to syncope, especially if glittering metal catheters are among them, and if these are not too noiselessly placed into the pan for resterilization, the promptly saturated condition of garments or bed will then show that the patient has been spared instrumental intervention.

Hot Baths.—When a patient cannot urinate, a prolonged hot hip or general bath suffices, in many cases, to overcome the retention. In all it gives time to inquire into its cause and to prepare for treatment. Furthermore, as all retentions resting upon disturbances of the urinary apparatus are aggravated by local congestion, the hot bath is useful in equalizing the circulation and thus tending to reduce the local congestion. Even if this is not sufficiently overcome to enable the patient to void urine, subsequent treatment will be easier in consequence.

The ten or fifteen minutes that the patient spends in the bath also give ample opportunity to prepare the instruments to evacuate the bladder, should they be required. At the same time the history of the case may be obtained and such physical examinations made as may be necessary. Among these, bimanual palpation, with one finger in the rectum and the fingers of the other hand on the prevesical region, will determine whether an enlarged prostate is at least a contributing cause of the retention. Experience in the rectal touch enables the practitioner also to very closely estimate the amount of urine retained in the bladder. This offers a most valuable means of differentiation, for if bimanual palpation shows the bladder to be empty, the absence of urination is not due to vesical retention, but to renal or ureteral retention, or anuria.

The bath, the examinations, the preparation of instruments often have decided psychic advantages. They appeal to the patient as active procedures directed to the relief of his distress. His quite natural anxiety and irritability are very much appeased and he is rendered a coadjutor in the manipulative measures that thereafter may be needed.

Obviously, however, if the physician is called when the retention menaces rupture of the bladder or urethra, immediate instrumental intervention is necessary, without the delay that the bath entails.

When the retention is due to general systemic disease (*e.g.*, typhoid fever, locomotor ataxia) it must be relieved by catheterism, although the hot bath may be of service incidentally.

Diuretics and Diluents.—Anything that increases the secretion of urine can but aggravate overdistention of the bladder. Therefore, diuretics and diluents are distinctly contraindicated in retention of urine.

Antispasmodics.—No retention of urine is ever caused by vesical spasm. Spasm of the compressor, however, can evoke temporary retention. But this retention is so brief that it subsides before any drug can take effect. It merits mention, if only to warn against the employment of antispasmodics to combat it.

Opiates.—These cannot affect a urinary retention, no matter what its cause. They may, however, retard the secretion of urine as they diminish all secretions, and thus delay the ever-increasing distention of acute retention. At the same time they must necessarily reduce the reflexes which are the essential stimuli to micturition. The caution with which they must be employed is, therefore, self-evident.

General Anesthesia may be serviceable under the exceptional circumstance of a hot bath being unobtainable. However, when complete retention is due to an obstruction (stricture, prostatism, a foreign body or growth) general anesthesia avails nothing, as it cannot reduce the obstruction. Neither can an anesthetic at all influence the pelvic congestion which may, when even a minor obstruction exists, precipitate a retention.

Other Devices.—The practitioner's ingenuity will oftentimes overcome an emergent retention. The senior writer of this paper recalls in connection herewith, a heavily strictured negro, who, after each alcoholic or sexual debauch, had retention. This patient had been taught by a physician, whose name he had forgotten, to cut a willow twig, render it smooth, and insert it into his urethra. By pressing it against the stricture, the congestion of the region was in a short time sufficiently reduced to enable him to emit urine.

A more directly effective procedure is related by Dr. Thomas R. Evans, of Ashland, Ky., in the *Philadelphia Medical Journal* of April 4, 1903. This author, speaking of another practitioner in citing a case of retention of urine, says: "He espied a castor-oil plant. The leaf of this plant gives a bend to the stalk like the curve of the male catheter. Its caliber, the fact that it is hollow, its ease of lubrication by slightly scraping it, and its comparative toughness all rendered it a natural catheter." Quotation of these instances is in no manner intended to recommend them as substitutes for careful, methodical, aseptic procedures. But when danger from the emergency is imminent and no proper means at hand to avert it aseptically, the risk of infection must be incurred to avert the more immediate menace.

Capital Surgical Intervention.—Whatever the condition that produced the retention of urine, major operation is only exceptionally required to meet the emergency. While in some cases capital operative measures may be needed to cure the

basic condition, the urgent symptom can in the vast majority of instances be relieved without life-endangering procedures.

Non-Operative Intervention.—The period for which a retention has persisted is no guide to the need of instrumental ingression. In some cases the alarm created by the inability to urinate is so great as to cause the secretion of immense quantities of hysterical urine, still further dilating the distended bladder, and consequently still further increasing the distress. Palpation and percussion, in many cases mere inspection, reveal an immensely dilated bladder, extending far above the pelvis and apparently on the verge of rupture. Rupture of the bladder, however, occurs but rarely, and can always be prevented by an operator who is prepared for the emergency. The preparation is so simple that even the youngest general practitioner who will observe the ordinary rules of asepsis, can carry to a successful issue every case, even when the most alarming symptoms present.

In order to render of practical value any effort to set forth the various modes of treatment of vesical retention that most uniformly prove successful, it must embody a consideration of the causes of retention. These are often so interlaced that any classification would be but artificial and hence non-conducive to an intelligent grasp of the subject. It seems better, therefore, to recite the conditions that may produce the symptom, in the order of their gravity.

1. *Retention Complicating General Diseases.*—Osler[1] says: "Retention of urine is an early symptom (of typhoid fever) and may be the cause of abdominal pain. It may recur throughout the attack." The same authority, in discussing locomotor ataxia, states: "The first warning of the disease which the patient has may be a certain difficulty in emptying the bladder."

2. *Simulated Retention.*—Some miserable creatures of both sexes feign retention of urine for the masturbatory gratification which catheterism brings them. Lydston,[2] in his classical work, calls attention to this as follows: "The gynecologist is compelled to be on his guard with reference to a not infrequent form of nymphomania, but one which is little suspected by those surrounding the patient, in which the woman develops a fondness for gynecological manipulations. The subterfuges and devices of such patients to induce handling of the sexual organs by the physician are often remarkable. One of the most frequent forms of this malingering is the pretence of retention of urine, although every disease that they ever heard of may be complained of by such patients in their insane endeavors to obtain manipulations at the hands of the physician."

Howe (quoted by Lydston) relates a case of this kind occurring under his observation at Bellevue Hospital:

"*Case.*—A girl, aged eighteen years, was admitted supposed to be suffering from retention of urine. She was thin, her eyes were deep-set but bright and staring, and were found filled with tears. Her statement was that she had passed no water for three days; that she was subject to these attacks and was treated by having her water drawn off. I introduced the catheter and found only a few ounces of urine in the bladder, not enough, indeed, to corroborate her history. The next morning, as she had not urinated during the night, I drew off the urine again. While doing so I noticed by a series of curious convulsive movements that she was under the influence of strong excitement. Further examination showed that the labia minora, clitoris and adjacent parts were red and swollen and bathed in a profuse mucous secretion. I then remembered that on the previous evening she had shown a somewhat similar state of excitement, and gave the nurse orders to watch her closely all day. In the evening the nurse informed me that the patient kept up a constant friction of the genitals when she supposed no one was watching, and even when eyes were on her she endeavored by uneasy movement in the bed to keep up the titillation. Knowing then what I had to deal with, the patient was given a sedative and told she must empty her bladder without assistance. For thirty-six hours subsequently she obstinately insisted on her inability to urinate. When she was told that no catheter would be employed again, there was no further retention. Soon after she left the hospital, I learned that a physician friend of mine was treating her for uterine disorder, but he, too, soon found out the true nature of the case, and advised her to get married."

"A number of cases of a similar nature have come under the author's observation, both in hospital experience and private practice."

Lydston's experience is not dissimilar from that of other specialists. The senior writer of this paper recalls a few males who used like subterfuges to the same end.

3. *Hysterical Retention of Urine.*—Detailed consideration and treatment of these cases, as those of simulated retention, belong in the domain of psychiatry.

4. *Retention from Delayed Urination.*—Only those cases in which no pathological change exists are intended to be covered under this paragraph. Some men and women, otherwise quite sensible regarding their physiological needs, will defer the act of urination in obedience to social demands, even when conveniences for relief are at hand, as in European cities. The first desire to urinate is easily controlled. Tolerance of increasing vesical distention is soon established, and for a while the desire to void the bladder ceases to assert itself. The conditions that then attract the patient's attention to any abnormality are, (*a*) a vague sensation of pelvic or abdominal discomfort; (*b*) recollection that an unusually long interval has elapsed since the last urination, or (*c*) an unsuccessful attempt to empty the bladder in obedience to habit, as before retiring.

[1] Osler. "The Principles and Practice of Medicine," Appleton, 1902.

[2] G Frank Lydston. "Surgical Diseases of the Genito-urinary Tract." F. A. Davis Co., 1899.

Ineffectual efforts to void urine under any of the above circumstances soon produce great physical and still greater mental distress. The patient unconsciously evokes the additional aid of the abdominal muscles to assist the detrusors in overcoming the compressor. The greater the efforts thus made, the more intense does the distress become. If long in this condition, the patient may appear to be on the verge of collapse, the pulse becomes small and rapid, respiration labored, the expression anxious, the skin pale and bathed with clammy sweat. In very rare cases syncope results, and when it does, the consequent muscular relaxation often allows the escape of urine. The sudden emptying of the bladder, in such an event, may be followed by hemorrhage *ex vacuo,* as is likely to occur also when retention due to other causes is too abruptly entirely relieved.

The treatment of retention due to delayed urination does not differ materially from that of retention dependent upon other causes, except that in the former, recourse to general anesthesia may be inevitable when the patient's pusillanimity precludes even touching the genitals.

5. *Retention from Excesses in Baccho et Venere.*—It occasionally happens that a person, of either sex, with normal urinary apparatus, is seized with retention of urine, while in an alcoholic or sexual debauch. The treatment of such a condition is identical with that of retention due to delayed urination (*supra*).

6. *Retention from Fear of Pain.*—Occasionally a case is seen in which the patient suppresses the desire to urinate because the preceding urination was painful to him. This ordinarily occurs with patients suffering from acute gonorrhea, who cannot be convinced that after an irrigation of the urethra, urination which previously was painful is most likely to be entirely easy and free from difficulty of any kind. A retention of this kind must be treated as retention in the beforementioned conditions.

7. *Retention Due to Stricture.*—When a urethral stricture is neglected, it generally contracts so gradually that the patient does not observe the reduction of the caliber of his stream. So, too, he fails to observe the gradual increase in the number of times he finds it necessary to empty his bladder. If uncleanly, he pays no heed to the dribbling of urine that follows micturition which, saturating the garments and macerating the epithelium of the genitals while it decomposes, may produce irritating skin eruptions. These, then, may cause him to seek advice leading to the discovery of the presence of urethral stricture. In some cases the stricture is not noticed until the patient, after an alcoholic or sexual debauch, suddenly finds himself unable to urinate. In rarer cases, without precipitating cause, the peristrictural region becomes engorged until it entirely arrests normal emission of the vesical contents.

Whatever the cause that leads a stricture to prevent the extrusion of urine, the retention must be promptly conquered. This demands, primarily, every effort to traverse the urethra without the slightest injury to its mucosa. The first impulse of the inexperienced is to insert a small instrument. This is an error, because it invites the very injuries which it is essential to avoid. A fine catheter, no matter how soft, is more likely to engage in and penetrate the urethral folds or enlarged Morgagnian crypts, puncturing, tearing or producing false passages, which seriously complicate the condition. The rules to be observed are the following: (1) Wash the urethra as far as possible with hot boric acid 4 per cent. solution, or oxycyanide of mercury 1-5,000. (2) Select the largest blunt, soft rubber catheter that will pass the external meatus, lubricate it liberally with Gouley's saponic lubricant, Guyon's ointment, Synol soap, or 10 per cent. suspension of iodoform in glycerin. (3) If the catheter in its course toward the bladder is arrested, press it gently against the obstruction for a few seconds. If the obstruction does not yield to mild pressure, withdraw the catheter and select a smaller one. (4) In case three or four blunt catheters successively used prove futile, continuance of their employment is inadvisable, as they are likely to irritate and increase the urethral congestion. Therefore, it is well, at this stage, to have recourse to conical olivary woven catheters, whose high polish diminishes the risk of frictional injury of the mucosa. The same technic suggested above (3) is to be applied in the use of these catheters. (5) In case the conical olivary woven catheters also fail, several efforts may be made with the Delafosse or Phillip's rat-tail catheters. As the sudden obstruction met in the strictured region is usually soft tissue, it is most likely to yield to the very gradual increase of size of these catheters, after their fine terminals have traversed the coarctated region. (6) As soon as any of the above-mentioned instruments has entered the bladder, the urine will escape from its mouth. The relief that the patient then experiences might mislead one into allowing the entire vesical contents to escape. This would be a grave error, for two reasons (*a*) sudden evacuation of the bladder is likely to produce a serious hemorrhage *ex vacuo;* and (*b*) withdrawing the catheter after it has rested but a few moments in the strictured region, robs it of the opportunity to exercise that decongesting influence which must immediately precede the dilatations that are subsequently employed for treatment of the stricture.

Hence it is wise to relieve the bladder very gradually. This is best accomplished in the following manner: (1) Allow 60 c.c. of urine to escape. Save this for microscopical examination, so that it may be decided, as soon as possible, whether the upper urinary organs are affected. (2) With a syringe or irrigator, inject through the catheter 30 c.c. of warm 4 per cent. boric acid solution. (3) Permit 60 c.c. of the bladder contents to flow off. (4) Inject 30 c.c. of the boric acid solution. Continue the above procedure

until nothing but clear boric acid solution flows from the catheter.

If, however, all efforts at catheterism fail, recourse must be had to filiform bougies. These are employed as follows: (1) Bend the ends of three filiforms in the shape of bayonets; bend three at various angles, and three into corkscrew terminals. Dip each one into collodion, which, on drying, maintains the instrument in the shape given it. (2) Take the penis in the left hand and, with a syringe, fill the urethra to its fullest capacity with iodoform 10 per cent. in glycerin. While holding the penis with the third, fourth and fifth left fingers against the left thenar eminence, compress the glans with the left thumb and index finger to prevent the iodoform-glycerin from escaping. (3) Insert into the urethra as many straight, angular and bayonet-shaped filiforms in equal numbers as the meatus will easily admit. Very gently guide them as far as they will go, without exercising any force whatever.

When the filiforms are arrested, select any one of them and advance it gently until it will not proceed further without the employment of more force than is required to project it. Repeat this procedure with each one of the filiforms successively until one of them has found its way through the coarctation and into the bladder. Then remove all the other filiforms and anchor this one in place according to Guyon's method, as elsewhere described.[1] (4) If the introduction of a straight, bayonet-shaped, or angular filiform is impossible, then insert a corkscrew filiform in the same manner as described above. When it has reached a spot which it will not traverse, turn it very gently to the right and left until it becomes engaged in the lumen of the stricture through which it will then readily find its way. Should it reach a point whereat its progress is definitely arrested, insert another corkscrew filiform and employ it in the same manner as the preceding one. In cases of excentric or tortuous stricture, three or four or more such filiforms may sometimes be needed.

When a filiform has traversed the stricture, even though tightly grasped by any part of the urethra, the retention is practically conquered. Drops of urine will soon begin to dribble along its sides and in from six to twenty-four hours the filiform will be found lying loosely within the stricture. A catheter can then be easily inserted. It will be well, when catheterism has become possible, to anchor fast the catheter in the same manner as the filiform was kept *in situ*, and to close its mouth with a wooden plug or spigot which may be removed at regular intervals and the bladder washed when necessary.

If examination of the urine reveals that the upper urinary organs are seriously affected, the presence of the filiform through the stricture will assist in establishing the drainage which is the condition precedent to treatment of the vesical, ureteral or renal involvement. Moreover, if rupture of the bladder, of the posterior urethra, or infection menaces the patient's life, then the filiform will serve to conduct a Gouley tunneled catheter for more rapid evacuation of the bladder or as a preliminary to internal urethrotomy or a guide to external urethrotomy.

Fig. 1.

Filiform bougies: Straight, angular, bent bayonet-shape and with cork-screw terminals.

Whenever all efforts to introduce even the finest filiform through the stricture prove unavailing *suprapubic puncture* may save the patient from a dangerous operation. This is performed by first shaving and rendering the pubis aseptic and then plunging a canula and trochar through Retzius' space into the bladder. This almost painless and safe operation may be repeated three or four times in twenty-four hours. Before each repetition, efforts should again be made to traverse the stricture as before suggested. In the vast majority of cases they will prove successful sooner or later, in consequence of the reduced congestion established by removal of the impediment which an overdistended bladder offers to return circulation.

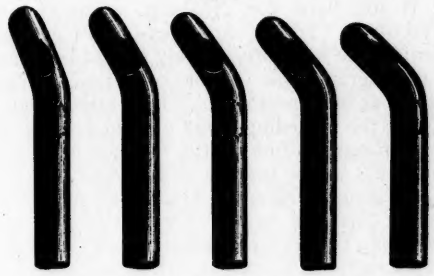
8. *Retention Due to Prostatic Enlargement.*—Prostatics are liable to retention of urine at any time, from the same causes that can produce retention in strictured patients. The symptoms of such retention are practically identical with those of retention caused by stricture. The treatment of this retention is not difficult while the bladder-contents are still aseptic. If the retention is recent, a prolonged very hot bath often procures relief without instrumentation. If, after ten or fifteen minutes of such a bath the patient cannot empty his bladder, his hips may, while he is still lying or sitting in hot water, be elevated sufficiently to expose the genitals for catheterism. The instruments most safely used are the Mercier

[1] "The Irrigation Treatment of Gonorrhea; Its Local Complications and Sequelae." Wm. Wood & Co., New York.

woven catheters as modified by Guyon. These catheters are made with their beaks bent at various angles, as shown in Fig. 2.

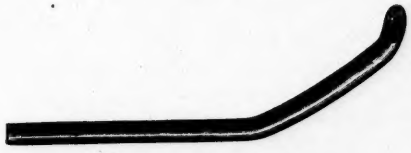
In the use of these prostatic catheters, the same rules obtain as given for the employment of filiforms in retention due to stricture, with the exceptions noted below: (1) If the urethra is not abnormally contracted at any point, the catheter is gently but steadily guided to the prostate. Then, together with the penis it is depressed between the thighs, so as to cause the catheter's beak to surmount the elevation of the prostate.

Fig. 2.



Guyon modification of Mercier catheters.

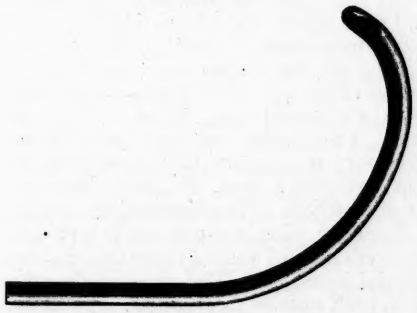
Fig. 3.



Double-curve catheter.

(2) When a catheter refuses to overcome the obstacle in this manner, it is prevented possibly, by the angle of its beak (see Fig. 2) being too small. One whose beak has the next larger angle is then used. This process is continued until a catheter selected overcomes the obstacle. In some cases double-curve catheters (Fig. 3) will be found necessary to attain the desired end.

Fig. 4.



Metallic prostatic catheter.

In exceptional cases the metal prostatic catheters (Fig. 4) will be required. Their employment is demanded especially when severe spasm is associated with the retention, or when the condition is complicated by local disturbances.

In all cases, the bladder must be emptied *par etappes* (Guyon); *i.e.*, by the same gradual method advised for the relief of retention due to stricture. When the urine is aseptic, boric acid solution will suffice. When the urine is infected, solution of silver nitrate, 1 to 5,000 down to 1 to 2,000 or stronger, must be employed. When the urine is very turbid and putrid, resorcin 1 to 500 down to 1 to 100 often proves serviceable.

Retention due to prostatism may be complicated by a foul bladder produced by (1) cystitis due to decomposing residual urine, (2) infection from without, (3) infection from the upper urinary organs, (4) stone, (5) bleedings from the prostate or the bladder-walls, (6) intravesical growths.

Whenever any complication is present, or when catheterism is difficult, it is advisable to anchor the catheter in place as soon as the emergency is overcome.

According to the condition, the mouth of the catheter is plugged as advised in the treatment of retention due to stricture, or the bladder is continuously drained. The drainage by catheter is easiest of accomplishment by attaching a short rubber tube to the mouth of the catheter and resting its free end in the bottom of the narrow tube of a Du Chastelet urinal in which a tablet of mercuric bichloride is kept.

In some cases catheterism and drainage may be impossible, because of (*a*) immense prostatic enlargement, (*b*) irritability of the urethra, (*c*) unwillingness of the patient to submit to the necessary procedures, even when painlessly conducted. Suprapubic puncture (see Retention due to Stricture) may then be employed to overcome the emergency. Frequent repetition of these punctures, when the bladder is infected, cannot be advised.

In any of the above conditions, or when membranous cystitis, stone, a growth, severe bleeding or menacing infection of the upper urinary organs exists, radical operation is required.

According to the condition, the intervention needed may be suprapubic or perineal drainage, galvano-incision of the prostate (Bottini) or complete prostatectomy.

Less frequent, yet occurring often enough to warrant mention here, are the following causes of vesical retention of urine:

9. *A Tight Meatus.*—This, especially in the newborn or in others, when any irritative condition causes the occlusion, may produce retention of urine. Its mere presence can also, by evoking that spasm of the compressor, described by Otis Sr., some thirty years ago, suffice to prevent extrusion of urine. The condition itself indicates the treatment—prompt meatotomy.

10. *A Tight Prepuce* for the same reasons may provoke spasm of the compressor. Immediate relief is obtained by at least slitting the foreskin, when the emergency is so urgent that there is not time for circumcision.

11. *Phimosis and Paraphimosis.*—Either of these conditions may be the direct cause of retention of urine, as they also may evoke that compressor-spasm which can prevent evacuation of the bladder.

12. *Severe Hyperacute Urethritis,* gonorrheal, chemic or traumatic, may cause such swelling of the mucosa as to render the urethra impassible for urine. Wossidlo[1] concisely disposes of such a sudden, complete retention by advising the use, at first, of narcotics and hot baths: "If these fail, catheterism must be employed. For this purpose a soft, well-sterilized, elastic (Nelaton) catheter is used, after carefully irrigating all that part of the urethra that may be accessible thereto, with a hot solution of potassium permanganate 1 to 4,000 and then anesthetizing the mucosa with cocaine or beta-eucaine."

13. *Foreign Bodies.*—These may occlude the urethra or so rest within the bladder as to obstruct the internal meatus. Such bodies may be produced within (*e.g.,* stone, blood-clots, thick, dense shreds of mucus) or may have been inserted for therapeutic purposes (*e.g.,* broken catheters) or with masturbatory intent. To what extent the last-mentioned psychic aberration may go, is well exemplified by some Crétins of the Alps. Among these people are found furious, persistent masturbators, who, when their ordinary means of self-gratification cease to be effective, insert twigs even beyond the compressor into the posterior urethra for the purpose of titillating the colliculus seminalis in order to produce an orgasm.

Occasionally a young female is seen who, in endeavoring to rid herself of the product of conception, tries to insert a catheter or crochet needle or other foreign body into the womb. Through ignorance and maladroitness she forces it into the bladder, where it may fall behind and occlude the internal meatus, besides provoking cystitis.

Even if a foreign body does not prevent urination, or does not produce very troublesome symptoms, its removal is imperatively indicated. When lodged in any part of the urethra, but not very firmly imbedded within its tissues, the foreign body is generally most easily removed with the aid of the urethroscope. When, however, the urethral caliber is too small for the introduction of a serviceable tube, efforts may be made to remove it with a urethral foreign-body forceps, guided by the sense of touch.

When the foreign body is wedged deeply in the posterior urethra and cannot be removed and is small enough to permit being so treated, the retention may be relieved by thrusting the foreign body backward into the bladder by means of a sound aided by a finger in the rectum. Of course, its removal from the bladder must be accomplished as soon thereafter as possible. Occasionally such a stone imbedded in the tissues of the perineal urethra cannot be dislodged by any of the means mentioned. Then it must be removed by perineal section. Guiteras[1] reports such a case, the stone thus removed by him probably being the largest on record as taken from this region.

A foreign body in the bladder requires removal, if small and soft by the Guyon brisepierre or the Nitze operating cystoscope. If large, litholapaxy, and if too hard for crushing, cystotomy will be required. If for any reason, an emergent retention due to a foreign body cannot be relieved by catheterism, the major operation indicated must be at once performed. It is unnecessary to add that the preceding is not offered as more than a very rough outline of the vast subject of foreign bodies in the urethra and bladder.

14. *Tumors* within the bladder or near it may preclude voiding urine. Ordinarily the emergency may be met by catheterism, or, when most exceptionally this cannot be accomplished, by suprapubic puncture. Naturally, the cause of the retention must be relieved by operative intervention as soon as the patient's condition permits.

A consideration of the sequelæ of retention of urine would carry us beyond the confines of this paper.

A cardinal rule, which in closing may be referred to, is that a patient with retention of urine must not be left until the retention is relieved.

It is but natural to inquire why an effort, at best but crudely sketching an isolated symptom, is presented before eminent genito-urinary specialists and in a program of deeply scientific, original papers. One justification therefor is advanced by our great master, Professor Guyon.[2] In connection with retention of urine, he says: "But when a morbid phenomenon acquires such an intensity that it not only disturbs a function, but renders it impossible, then, for this very reason it becomes a disease."

Again, it is hoped that this paper will be honored by a discussion. Such discussion will lend a value to the effort, which it could not otherwise attain.

Summary.—(1) When danger to life is not imminent, the domestic methods ordinarily employed may relieve the vesical retention, provided no mechanical obstacle exists. (2) Diuretics, diluents and antispasmodics are of no use in vesical retention of urine. (3) Opiates and general anesthesia are useful only under certain circumstances. (4) Capital surgical intervention may be necessary to cure the basic condition, but the urgent symptoms can, in most instances, be relieved without life-endangering procedures. (5) Even the youngest general practitioner can carry every case of vesical retention of urine to a successful issue. (6) The cause of the retention must in each case be ascertained. (7) Only most exceptionally does a case present which cannot be relieved by minor procedures. (8) No bladder should be suddenly entirely emptied because of the danger of hemorrhage *ex vacuo.*

[1] Hans Wossidlo: Die Gonorrhœa des Mannes. Enslin, Berlin, 1903.

[1] Ramon Guiteras: Case of Rectoperineal Stone. Philadelphia Medical Journal, November 25, 1899.

[2] Guyon: "Maladies des Voies Urinaires." Ballière, Paris, 1903.

THE DANGER OF THE USE OF OPIUM IN INFANCY.

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IN a recent text-book the author asserts that any form of opium discreetly given in small doses is safe and harmless in infancy, and that its action and effects are always transient. This seems so opposed to many facts and experiences that it is evident that the author was stating unsupported theories of the past. For years the bad effects and positive injuries to infants and children from the use of proprietary drugs and soothing syrups containing opium have been pointed out, until the danger seems beyond question. The various tinctures and infusions containing opium in some form depend for their popularity on the fact that they quiet irritation and pain, particularly from neurotic and nutrient disturbances.

In adult life opium and its alkaloids are usually depressants with a short period of excitation. This seems frequently to depend on the size of the dose, although it varies widely in many instances. From some peculiar condition of the organism opium may act as a sharp stimulant, that is, increase the heart's action producing wakefulness and exhilaration for a time, then merging into sleep and narcotism. In other instances this stimulant effect is very short, and the narcotic period comes on after the drug is taken, and is preceded by pleasing quietness, comfort, and then sleep. These two effects are very marked in some cases. Where children are given official doses producing increased excitement, with nervous twitching, then sleep and stupor it is evident that its action is very dangerous. In other instances under the same condition and doses, where profound sleep and stupor follow, there is great susceptibility to the narcotic action.

The physiological action of opium and its alkaloid are more pronounced in infancy and childhood than in later life. One reason for this is that the organism is more unstable at this period, and also because there is less resistance, and the drug makes a more profound impression on the sensory centers than later in life. Its sedative action is that of palsy, where the cell functions and the cells themselves are disturbed and diminished, and it is impossible to tell whether this checking may not become permanent, producing change and perversion that continues all through after life. The action of opium while apparently falling most heavily on the sensory centers extends to other neurons and functional states, and probably concentrates on that part of the brain most susceptible to its peculiar pathological action.

It is evident that coarse low organic natures, and imperfectly developed brains and bodies are less susceptible to the sedative effects of opium than those persons of high developed nervous organization. The higher the organism, the more pronounced the effect from smaller doses. The coarser the organism, other things being equal, the larger the dose required to secure its physiological action. These general facts are the same in infancy. A child who is very susceptible, and is relieved at once by very small doses illustrates one phase, and another child of the same age, who requires double the dose to secure narcotic action belongs to the other class. In both the resisting power is very feeble, and it is impossible to tell what organic changes may follow from the chemical and physiological action of any form of opium. And it is also difficult to decide whether the effects are transient in infancy and childhood, or whether each dose does not help to create a demand for its further use in the future.

In adult life the pleasing psychic effect from the action of a single dose calls for its repetition under like conditions. In infancy this same effect may be noticed in a child who has once been quieted by opium, in the unconscious manifestation of excitement which is only allayed by a repetition of the drug. This is clearly a pathological demand, and an ominous symptom of the danger from the use of opium where its effects are rapid and pleasing. Nursing children suffering from irritation, indigestion, and troubles incident to infancy have been quieted by opium taken by the mother, acting through the milk.

Opium-taking women have in this way permanently injured their children, retarding their growths, and leaving a defective organization which created a tendency to use some form of opium in after life. An instance of this kind occurred in the family of a noted missionary where three children were nursed by a Hindoo woman. Each one of them grew up with abnormal, highly sensitive brains and feeble power of resistance, and all became spirit and drug takers before middle life. It was ascertained that the nursing woman was an opium taker, and the poison of this drug was in some way transmitted to the children, permanently changing the nervous organizations and vigor. Another instance quite as startling, was that of a mother who gave large quantities of soothing syrup to two of her children in infancy, then becoming convinced of its danger, abandoned its use. These children in middle life, became neurotics, spirit and drug takers. Three children born later and not given any drugs in early life, grew up strong and healthy. The effects of the soothing syrup in infancy was undoubtedly the cause of the neurosis seen in the older children.

There can be no doubt that continuous sedation, or palsy of the sensory centers in early life is never repaired. The growth and development of other organs may do much to overcome this perversion and injury, but the defects remain, and appear in adult life in the feeble pain centers, and low power of resistance. In a family of five children whose parents were very healthy and strong, each one developed a neurosis and nervous disturbances that was unusual and without any visible cause. All seemed to have feeble

nervous systems, and to suffer from nutritional and nervous disorders, and were both irritable and dull at times, and all because spirit and drug takers. The mother had used laudanum in infancy for some functional disorders, and without the advice of a physician.

The presence of nervous dyspepsia beginning soon after puberty, and continuing for a few years, until some form of alcohol or opium is used is a hint of the use of opium in early life. Early and profound exhaustion from overwork or excitement, low vitality and feeble nervous resistance is a natural sequel to the use of opium in infancy. Defects and degeneracies which break out in early manhood suggest the same cause, and often follow from the use of soothing drugs given in infancy. A tendency to seek relief from every discomfort and pain, which may properly be called a neurotic diathesis, can be positively grown and cultivated by the use of opium in early life, although it it may not appear for years after.

The magnitude of this danger is not at present recognized. The routine and thoughtless prescription by the physician is often followed by grave disorders in later life. Opium by covering up the pain signals is not curative, but may be destructive in more ways than at present known, and this injury will only be recognized in the future. Too much caution cannot be given against the use of narcotics in infancy. Of these, opium is probably among the most dangerous, because it is so easily accessible, and its effects are apparently so simple.

WATER ANESTHESIA IN SURGERY, AND ITS SUGGESTIONS IN MEDICINE.

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THIS brief article cannot be better introduced than by a detailed description of an operation in which the above principle is illustrated. On February 4, 1904, I took a patient to Dr. Gant, of New York, to be operated on for "piles," a handful of them, always heretofore a hospital case of several weeks' duration. The doctor, however, did the work in the office by his new method, water anesthesia (see his article in the *New York Medical Journal*, January 2, 1904). No anesthetic was used, either general or local. The procedure was as follows:

Each "pile" was injected with distilled water, and at once emptied, clamped, tied and cut away, five being so removed in this instance. The operation occupied about fifteen minutes, and the patient, my nephew, returned home with me, walking to the trolley cars, ferryboat and train.

Another patient was treated, a tuberculous case. Under water anesthesia fistulæ were opened and scraped; another, deeper one, was found and the cutting and scraping were done without injection of water in this instance, but with such intense pain as to leave no doubt as to the reality of the anesthetic effect of the water, and the absence of any influence of suggestion, auto or otherwise. Several weeks earlier a "major" operation was performed, a laparotomy, in which eight inches of the colon were removed, with no other aid during the operation than the hypodermic injection of distilled water.

Now as to the anesthesia, caused, one may say *produced*, effectively and effectually, by the water, or rather the principle and explanation of it. Dr. Gant says that as soon as distention of the parts is secured, accompanied by blanching, anesthesia is attained and he proceeds to cut without fear of giving any pain, just as he would under ether or cocaine. The distention and blanching are of course merely mechanical; the question is, What is back of and beyond these? that is the secret, the effective agency in the phenomenon, the anesthesia? As I told Dr. Gant, after watching the operations, the water enters the interspaces of the tissues and fills them; the pressure of the distention causes rapid osmosis into the intracellular interspaces—for there are such between the granular appearing substance, the protoplasm—temporarily suspending intracellular respiration, which, like the beating of the heart is incessant, and thereby causing local "death," for the time being. The nerve centers being paralyzed no afferent impulse is sent, and no response in the central ganglion arises, and of course pain is impossible.

This is still too early for a mature expression of opinion on the case, but important enough as a basis of "research" into the nature of the phenomena. Now for the point to be made and illustrated by these facts, and the principle they embody. Nothing save distilled water was used in these cases, and scores of others I have since seen. Would it be correct to say that distilled water has medicinal or anesthetic "properties," a "sedative action," or the "power to prevent or remove pain"? This is said of cocaine, eucaine, morphine, etc. There is just as much of "curative" or other "property" in distilled water as in solutions of cocaine or any drug. In other words, there is none whatever. The "property," the therapeutic or whatever action arises, is protoplasmic. In the specific instance of anesthesia, in the cases referred to, the distention, the pressure was mechanical, and effective in the suppression of cell respiration. Here we have, what may be termed negative results in suppressed protoplasmic activities, forestalling the cellular and protoplasmic action which occasions pain. Upon the fact and principle of protoplasmic activity are to be interpreted all organic phenomena. On this alone all manipulation of the complex and multiplex processes involved in disease may be based and guided. In the exhibition of drugs in the so-called "cure" of disease, the first question is: What action will result? This is a point in chemistry; biochemistry if one choose, though not necessarily so, as yet.

The second question is: What response will accrue from the mechanical and the chemical action of the drug injected? "Ah! there's the rub." Of this, alas! we know so little! Medical literature is marred by misapplied use of terminology, and misnomer. Newspaper and trolley-car advertisements catch up, exaggerate and spread the error. "It works while you sleep." "It acts while you take it," and the deluded public pay the dollar for the package which is a "sure cure" for the disease from which the carefully worded description makes the reader feel as sure he is suffering. "What are we going to do about it?"

A NEW INSTRUMENT.[1]

BY W. A. SEDWICK, M.D.,

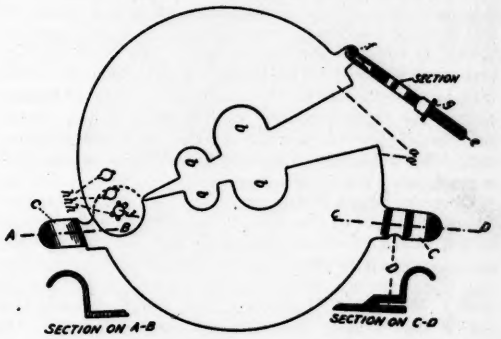
OF PUEBLO, COL.

THE following is a description of an instrument for the protection of soft tissues when amputating and for hastening said operation, and which, for want of a better name, I have called an "amputation shield."

Description.—Two concavo-convex blades make the shield. There are two oval openings about the center, which openings are for the reception of one or two of the long bones. They may be enlarged or contracted at will, and either one may be enlarged or contracted proportionately greater than the other if desired, thereby giving practically any size, at the same time, of either of the openings or of both. One blade of shield has a male, and the other three female portions of a lock. This lock serves the double purpose of holding this end of the blades together, and aiding the regulation of the size of the openings. Corresponding with this, on the opposite side, is another lock, which has a tongue 8 to 9 cm. long, the upper and under surfaces of which have screw-threads, while the sides are smooth and flat. This is attached to one blade by a screw, and plays into a groove made for it on the other blade. A nut on the free end of the tongue, retains it in place as well as assists in regulating the size of the openings which receive the bones. The screw and nut are movable for cleaning. Attached to one blade are two supports or handles. On the proximal surface are the attachments for locks, etc., leaving the distal wholly smooth over its entire surface, with nothing to interfere in the application of a saw. Fig. 1 shows the instrument put together. Fig. 2 shows it applied.

Use.—It has been my privilege to use the instrument described several times, and to my entire satisfaction, and if it proves of the same benefit in the hands of other surgeons, it will, I hope, find a wide field of usefulness. We have all used the three-tailed bandage, gauze or towel, but I fear with very poor or only fair success. Retractors are not, I think, in general use. An assistant is not necessary to hold the shield, but to insure firmness, retraction, if necessary, and dexterity, he will not be superfluous. One of the openings—the smaller—may be entirely obliterated if desired, as for example, when there is but one bone involved, such as a humerus. It is not presumed that it will adapt itself to every inequality of the bones, but it will to the extent of preventing the protrusion of any of the soft tissues or flaps. The convexity is greatest at the point of application of saw, *i.e.*, at the point of the openings, thereby insuring free motion to the saw.

Fig. 1.



Concave surface: *aa*, blades of shield; *bb*, openings for bones; *cc*, supports or handles; *d*, groove in which tongue (*e*) plays; *f*, screw attaching tongue to blade; *g*, nut on free end of tongue; *hhh*, female, and *i*, male parts of lock.

Application.—After the flaps have been made and the periosteum well denuded and pushed back, open the instrument, apply around the bone or bones, retract to the point elected for amputation, throw the tongue into the groove and screw nut as tightly as practicable. There is then an absolutely clear, clean field. (See Fig. 2.)

Fig. 2.

Showing application and field ready for division of bone.

The following are some of its advantages:

1. It is easily made aseptic.
2. Easy of application, and quickly adjusted.
3. It protects absolutely the soft tissues or flaps.
4. It gives a clean, clear, non-obstructed view of the field of operation, and thereby saves what is often most valuable time.

[1] Read before San Juan (La Plata County) Medical Society, Jan. 8, 1904.

5. It is applicable to one or two bones, and to practically all parts of them.

6. It leaves a minimum of bone denuded of periosteum, which might possibly undergo necrosis.

MEDICAL PROGRESS.

MEDICINE.

Antistreptococcic Serum in Smallpox.—A series of cases of smallpox has recently been treated by injections of antistreptococcic serum with such good results that A. C. SMITH (Med. Rec., April 2, 1904) believes that this method promises more success than any other. A full dose of twenty c.c. was used in each case and repeated in some of the severe ones. The advantages of this method were a shortening of the duration of the disease, absence of the secondary fever, lack of absorption of the septic products by prevention of pus formation, no pitting, no marked debility, less suffering and much less liability to lung and kidney involvement with a much more rapid convalescence.

Chronic Brass Poisoning.—One of the most confusing chapters in the domain of metallic intoxications is that relating to brass poisoning, and the varying opinions expressed in the literature would lead to the idea that there are no distinctive symptoms. H. N. MOYER and J. M. LAVIN (Medicine, May, 1904) report a case which they believe is true brass workers' ague. The general symptoms are those of a chronic metallic poisoning, but differing from most metals in the development of chills, which are strikingly like but lack the ordinary periodicity of malarial ague. The green line on the gum serves to distinguish this from other metallic poisons, but it is not constantly present particularly in those who take good care of their teeth. The organic affections of the nervous system so common in other forms of metallic intoxication, are absent. The attacks are probably due to excessive ingestion of the metal, and most likely to the copper element in the alloy.

Organotherapy in Diseases of the Pancreas.—The successful administration of thyroid extract in diseases of that gland favors the supposition that a similarly good effect may be attained in disturbances of the pancreatic functions. K. GLAESSNER and J. SIGEL (Berl. klin. Woch., April 25, 1904) have carefully studied the administration of various organic products in a series of cases where disease of the pancreas was believed to be present. Symptoms which were considered as characteristic included pancreatic colic and disturbances of metabolism and digestion, marked by the appearance of sugar in the urine, fatty stools and insufficient absorption of albuminoid materials. Among the various products which were tried they found that thyroidin exerted an unfavorable influence on the symptoms. Pancreon had little effect on the absorption of nitrogen and none at all on the fat. When pancreatin was used, however, the resorption of nitrogen was increased from 52 to 56 per cent., and the fat from 41 to 68 per cent. The most favorable results followed the administration at the same time of large doses of the alkaline carbonates, but the alkalin alone were not attended by any improvement. The best combination was a mixture of pancreatin and sodium bicarbonate.

Observations on Trichinosis.—Valuable additions to the knowledge of trichinosis is contained in an article by K. SCHLEIP (Deutsch. Arch. f. klin. Med., Vol. 80, Nos. 1 and 2), who had occasion to study an extensive epidemic. The incubation was in general short, since many patients became ill the day after the infection, the remainder began to complain on the third to the eleventh day. Ofttimes the disease gave the general impression of typhoid and formerly great stress was laid upon the absence of enlargement of the spleen in trichinosis, but since the author could distinctly palpate the organ in almost every instance, other signs must be looked for. These are found in the blood, and a blood examination will always be of inestimable value in sporadic cases when trichinosis is not thought of. The amount of hemoglobin and the quantity and quality of the erythrocytes does not vary much from normal, the blood-platelets are considerably increased after the acute symptoms abate and there is generally a leucocytosis which rarely reaches 20,000. The greatest interest centers around the eosinophile cells, which are most abundant in the severest cases but almost always above normal. The highest figures obtained were 62.2 per cent., while in pemphigus only 33 per cent. has been reported, and in urticaria 60 per cent. It was impossible to ascertain how early the eosinophiles make their appearance, but since 44 per cent. was already found on the tenth day of the disease, the symptom is probably a very early one. The neutrophiles were generally diminished, the lymphocytes somewhat increased, especially during convalescence. Variations in the quality and staining properties of the cells were never noticed. The two diseases which are most likely to be confused with trichinosis are typhoid and polymyositis; in the former a blood-count will readily decide the diagnosis; while for the latter, records of blood examinations could not be found. In the affected muscles there are inflammatory changes, both of a parenchymatous and interstitial type, spread over all the fibers independent of the seat of the trichinæ, but in their immediate neighborhood there is, in addition, a well-marked granular degeneration. The capsule is surrounded by a wall of small round cells consisting of lymphocytes, connective tissue cells and a few polynuclear leucocytes; external to this infiltration, the degenerated muscle-fibers are very rich in eosinophiles, probably as a result of the chemotactic action of the toxins secreted by the parasite. Transitional stages between neutrophiles and eosinophiles were found in neither the tissues nor the blood, but occasionally the basophiles contained some distinct red granules.

Splenomedullary Leucemia.—The case of splenomedullary leucemia, which was recently reported by Dr. Nicholas Senn as being cured by the use of the Roentgen rays, has led to the report of two other cases which may be claimed as cures. B. L. BRYANT and H. H. CRANE (Med. Rec., April 9, 1904) employed both arsenic and the X-rays in the first case, and the latter means seemed to materially hasten the recovery. In the second case arsenic alone was used, and although the improvement was slow, it was nevertheless constant and permanent. In Dr. Senn's case arsenic was also used, so that it still seems doubtful how much of the benefit was really due to the X-rays.

Lysol Poisoning.—Though lysol is considered a harmless drug, some 38 cases of intoxication are reported, of which 17 were fatal. In some cases a single teaspoonful gave rise to alarming symptoms while in other cases recovery followed after 100 grains had been taken. A new case is reported by F. FRIES (Münch. med. Woch., April 19, 1904), where the organ most affected was the kidney. The urine contained large numbers of casts covered with red blood cells, pigment and epithelial cells and as high as 12 promalbumin. Some of the casts were so large that they could be seen with the naked eye; their size and their branching make it probable that they originated in the collecting tubules near the pelvis. Their occlusion lead to uremic symptoms, which disappeared after a saline infusion.

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DIGITALIS IN HEART DISEASE.

NOTWITHSTANDING the elaborate and painstaking studies of the physiological effects of digitalis that have been made, there is still no little doubt as to the exact indications which the drug can be expected to fulfil. The discussion of this subject last week at the meeting of the American Medical Association, in the Section on Medicine (see our Society Proceedings in this issue, page 1085) shows that there is at least a fairly definite agreement among prominent clinicians as to certain contraindications and some conclusive observations as to what type of heart disease it will benefit. It is unfortunate that to many physicians the word heart disease at once brings up the suggestion of the administration of digitalis. As a consequence of this false therapeutic nexus the assertion made during the discussion at Atlantic City that digitalis has probably done more harm than good, because of this lamentable tendency to use it in all cases of heart disease, once compensation is broken, would seem to have a certain amount of justification.

There is no doubt that digitalis employed in mitral regurgitation with symptoms of loss of compensation is often an extremely helpful and always a very satisfactory drug. On the other hand, any one who has seen the uncomfortable effects produced by digitalis in cases of aortic regurgitation, in young persons with hypertrophy of the left ventricle, especially where patients are still able and are allowed to be around on their feet, will realize how much harm may be done by its use in heart disease without proper selection of cases. It may be said at once that to suggest its use simply because there is a murmur present and because perhaps the patient is nervous as the result of having recently been informed by an insurance examiner or after some chance examination of the heart for some other reason, that he has heart disease, is almost sure to be harmful.

The typical cases in which digitalis does good, according to the consensus of those who took part in the discussion at Atlantic City, are those suffering from chronic mitral endocarditis due to rheumatism. In these cases, if both the aortic and the mitral valves have become affected, as sometimes happens, then digitalis does good notwithstanding the fact that in simple aortic regurgitation it is usually contraindicated. These cases, however, are seen typically in young persons, before there is any degeneration of arteries. Whenever there are sclerotic changes present in the arteries, as is typically the case in most instances when aortic disease develops, then digitalis is always contraindicated.

In stenotic conditions at the various valves digitalis would seem to be nearly always a dangerous drug. With regard to mild amounts of stenosis at the mitral valve there may be some doubt in the application of this as a general rule. In aortic stenosis, however, there can be no doubt, as the increased action of the left ventricle produced by digitalis when exerted in the direction of the already blocked path, through which all the blood in the body must pass about twice a minute, is sure to produce overdistention of the cavity with degenerative changes in the muscular fibers and dilatation rather than compensatory hypertrophy of the heart. When there is a considerable amount of stenosis of the mitral valves the same thing would seem to be true, since the auricular fibers are much less capable of hypertrophy for the purpose of overcoming the resistance that the blood stream encounters at this orifice. Some stenosis here, however, probably exists with every regurgitation and the indications are not so absolute.

In general it may be said, however, that the most important factor in any successful thera-

peutics of heart disease, whether it be by the use of digitalis or any other remedy, must always be considered to be absolute rest for the patient. It would seem especially unfortunate to use digitalis freely at times when patients are around on their feet and using practically all the strength they have when they should be resting quietly in bed and giving their hearts the indispensable opportunity to recuperate after the strain and the overwork which have caused the break in their compensation. It is the neglect of this precaution that, especially in the early and often quite tractable forms of mitral heart disease, is the true cause for complaints on the part of physicians of the failure of digitalis to give relief. There is another cause in the neglect of proper regulation of diet and due attention to intestinal evacuation which must be the first step in any treatment of heart conditions.

One of the greatest clinical teachers, here in America, once impressed this lesson upon his class by demonstrating a patient in whom both mitral and aortic regurgitation were present with, in addition, some leakage of the tricuspid valves. Heart compensation, which had at one time in the patient's history been quite satisfactory, was completely broken down. The Professor said, "You see how serious is this case. Of course we shall put him to bed and require him to rest there absolutely—that is, not allowing him even to sit up to eat or read. We shall make his diet as bland and as unirritating as possible and it shall consist mainly of milk, which fortunately he likes very well. We shall keep his bowels freely open and shall remove all sources of worry, as far as possible, from him. Of course we must give him medicine, otherwise he would be sure that nothing was being done for him. We shall prescribe for him ten drops of compound tincture of cardamom every two hours for the next week and I shall show him to you at the end of the week and you will see how much he has improved." The event justified his prophecy. The lesson was too precious ever to be forgotten.

NEW YORK'S OYSTERS AND TYPHOID FEVER.

IT is now some years since it was absolutely demonstrated by careful investigations made in England and in this country that oysters may be an important means of transmitting typhoid fever. Notwithstanding this, there has been a general impression that while the occurrence of typhoid fever as the result of infectious material consumed with raw oysters did happen at rare intervals, it was very exceptional, and most people have gone right on eating oysters and other shellfish with only occasional times of carefulness—after some specially sensational announcements. If there are any left, however, who doubt of the possibility of the transmission of typhoid fever by means of oysters, such doubts would have been removed at a recent meeting of the Medical Society of the County of New York, held April 26, 1904.

The larger question emerges from this discussion, Why is it that typhoid is not more frequent when one considers the question from the infectious standpoint?

Dr. Bensel, the acting sanitary Superintendent of the Department of Health of New York City, gave a practical demonstration by lantern slides of the proximity of the beds where oysters are stored for fattening purposes to many sources of sewage material, human and animal, as from house drainage, the overflow from street drains and the like. The various oyster beds near New York were investigated, and practically the same conditions were found to exist in them all. On the Long Island shore of the Sound, on the Connecticut shore, in Staten Island, and on the Jersey coast, everywhere outhouses and barns are near the streams in which oysters are kept under water for days before being shipped to market.

After securing a load of oysters it is the usual rule of the dredger to bring them up some of the small streams where for several days they are put in the brackish water containing much less salt than that in which they lived during their growth. As the result of osmotic phenomena, the oyster, under these circumstances, absorbs and retains much more water than in its natural habitat. Thus the oyster acquires the fat succulent appearance which certain of the uninformed prefer, but which no true connoisseur in shellfish will ever accept as natural.

The fattening is carried on either on the lower floor of an oyster house, which is below the level of the water, at high tide, at least, or on the bottom of an oyster float; in tidal waters usually the houses are employed. In many cases, Dr. Bensel showed that within a few yards, indeed, often within only a few feet of these oyster houses, privies and cesspools were built and that sometimes the leakage from them surely would permeate the short distance to the bank of the stream, or even flow directly into the oyster house itself. Where the oyster floats are more common, as in Jersey, it is not unusual to find

that cesspools are erected in such a way as to allow the dejecta to find their way directly into the stream. In one instance, indeed, an oyster float was situated within a few yards of an outhouse used by a large number of people in a factory on the banks. Sewage of various kinds from the little towns finds its way into the small streams and, owing to the sluggish nature of the flow, because of tide-water below, this material readily finds its way into the oysterflats.

Another investigation of the New York Board of Health, under the direction of Dr. Cyrus Field, shows that ordinarily in salt water, typhoid bacilli will gradually die out, though for at least six days a number of virulent microorganisms remain. When oysters are stored in salt water then, there is not so much danger. In fresh water, however, the destruction of typhoid bacilli is not so rapid. Dr. Field also showed that in healthy oysters, the vital processes seem to protect the shellfish from becoming a mere culture medium for typhoid bacilli and that consequently there was at least no increase of the number of bacilli but on the contrary a gradual reduction in number. In oysters that are dead, however, or of lowered vitality, because of maltreatment during shipment, typhoid bacilli grow very rapidly. It would be natural to expect that oysters undergoing this fattening process in unclean water would therefore present a rather favorable condition for the growth of typhoid bacilli. They certainly are not so resistant as are healthy oysters.

It is very evident that a change will have to come, if the inhabitants of New York are to be protected properly from the dangers of typhoid fever. At one time, it seemed hopeless to think of protecting the city's milk supply. We have learned in recent years how much may be accomplished in this matter by care and insistence. The same amelioration of conditions must now be secured for the oyster traffic. The unhygienic process of fattening, unjustifiable from many points of view, must no longer be allowed or else must be conducted in perfectly clean water. This would not be difficult if, for instance, oysters were kept on the floor of a house through which was allowed to flow a stream of drinking water from the hydrant of a town known to have a good water supply. If necessary, salt may have to be added to such water in sufficient quantities to keep the oysters in a healthy condition. Certainly, with present surroundings, it is a wonder that there is not more typhoid fever, though many physicians have recently said that considering how fairly good our water is and the present supervision of our milk supply it is surprising to see how many cases of typhoid fever still occur. These announcements come at the end of the oyster season and it is to be hoped that measures for the proper protection of the oyster industry will be taken during these months without "R's," when the bivalve is not popular.

ECHOES AND NEWS.

NEW YORK.

Psychopathic Branch of New York Hospital.—Dr. S. B. Lyon, of Bloomingdale, has just revised and amended Dr. Pliny Earle's description of the old Bloomingdale Asylum in an attractive pamphlet.

Cornell University Medical College Commencement.—The Sixth Annual Commencement of the Cornell University Medical College was held in Carnegie Hall on Wednesday, June 8. Fifty-five students received their degree. Dr. W. W. Keen delivered the address of the evening. The ten students standing at the head of the class, counting the marks of all four years, were in order as follows: G. W. Cottis, Helen L. Carter, S. Feldman, C. A. Squires, E. N. Peck, W. Grossman, J. M. Goldberg, H. C. Becker, L. A. Parmenter and H. C. Gifford. G. W. Cottis, who stands at the head of the class, received a rating of 92 per cent. In addition to the money prizes to the first three of the ten a set of otological instruments was presented by Prof. Bacon for the best work in Otology during the year to Charles A. Squires, and a money prize by Dr. Dana for the best work in Neurology to C. L. Nichols. Dr. Austin Flint presented three prizes, each consisting of handsomely bound set of his own essays, to L. F. Schiff, of the second year class, and to G. W. Wheeler and L. L. Joshi, of the first year class, for the best work during the year in Physiology.

New Laboratory Building of New York University.—The council of the New York University, on the recommendation of the faculty of medicine, has arranged for the immediate erection of a six story edifice adjoining, and harmonizing in its architecture with the main college building. This will be completed and ready for occupancy with the opening of the college session of 1904-'05. It will furnish needed accommodations for the largely increasing number of students, and will render possible a further extension and elaboration of the laboratory work. The class room laboratories thus provided will be large and commodious, admirably lighted from two sides, and will afford exceptional facilities for teaching purposes. The first floor of the new building and part of the second will serve to increase the number of teaching rooms in the college clinic, which are greatly needed for the proper utilization of the 150,000 patients annually treated for clinical teaching. The remainder of the second floor will be used for the examination of specimens sent from the college clinic and from the medical and surgical services of the college in Bellevue Hospital. Students of the third and fourth year classes will have regularly assigned work in this laboratory, and will be thoroughly trained in the methods of clinical diagnosis. The third, fourth and fifth floors will be occupied by large class-room laboratories, devoted respectively to normal and pathological histology, bacteriology and applied pathology and chemistry. The

sixth floor will accommodate the increasing work in anatomy, experimental surgery and operative surgery on the cadaver. The removal of the class-room laboratories above-mentioned from the main college building will allow of immediate additions to the physiological and pharmacological laboratories and the pathological museum, and furnish greater facilities for research workers.

Epidemic of Meningitis.—The report of the Department of Health for the week ending May 28 shows that 80 deaths from cerebrospinal meningitis occurred here in the seven days, precisely 68 more than were reported in the corresponding week of 1903. Thirty deaths were of children under five years of age, 26 of children from five to fifteen years, 17 of persons between fifteen and twenty-five, and seven of persons between twenty-five and forty-five years. Last week the epidemic showed signs of abating.

Tuberculosis and the Health Board.—Pulmonary troubles have reached a maximum, says Dr. Darlington. One thousand cases are now under the direct care of the Health Department, the largest number on record. For the benefit of these sufferers and of the general community, Dr. Darlington has issued the following instructions:

"Be hopeful and cheerful. The disease may be cured, but it will take some time. Obey your physician's instructions faithfully; improvement may be lost by carelessness. Do not talk to any one about your disease, except your physician and nurse. Do not kiss any one upon the mouth. Shave your beard or wear it closely clipped. Stay in the open air as much as you can. Do not be afraid of cold weather; dust and smoke are worse for you than rain or snow. Keep at least one window open in your bedroom. Keep feet dry and warm. Avoid all unnecessary exertion. Never run or lift heavy weights. Never take any kind of walking, breathing or other exercise when you are tired, nor take them to the extent of getting tired. Go to bed early and sleep at least eight hours. Take a warm bath once a week. Take half an hour's rest on bed or reclining chair before and after the principal meal. Avoid eating when bodily or mentally tired or in a state of nervous excitement. Do not smoke or drink liquor, wine or beer, except by special permission, but drink plenty of good water between meals." The Department of Health is cooperating with Commissioner Woodbury in his war on foods that have been exposed to dust and germs. Dr. Woodbury's crusade against the exposure of food along the sidewalks or on outdoor stands will, if successful, drive the push carts out of existence and compel grocers and provision dealers to give up the display outside their shops.

New Medico-legal College.—St. John's College at Fordham will have medical and law departments added to its course of education, beginning with the fall term. They will be housed in a new building now in course of construction, and costing $125,000. It will be known as St. John's Hall. The Very Rev. Dr. J. J. Collins, the new rector of the college, said yesterday: "Formal application will be made to the State Board of Regents on June 27 for permission to have included in our curriculum the departments of law and medicine. While we have not been known as a university, our charter, obtained in 1846, is that of a university. Our name will be changed from St. John's College, Fordham, to St. John's University. We have been contemplating this increase of studies for some time, and have deemed it ripe for execution now. Especially is this so in the case of our medical department, since we are to have a public hospital on our grounds, four acres of which were purchased last week by the board of managers of the Bellevue and Allied Hospitals." "Are you to have the use of the hospital clinic?" Father Collins was asked. "We hope to have this courtesy extended to us. It has not, however, been mentioned by us to Dr. Brannan, nor was it stipulated in the sale of the property by us to them. Dr. Brannan assures us that the new hospital will be completed in about a year and a half, ground being broken for it in the next week or ten days."

PHILADELPHIA.

Official Guest of A. M. A.—Prof. A. Maitland Ramsay, M.D., of Glasgow, Scotland, the official guest of the American Medical Association was the guest of Dr. Charles A. Oliver of Philadelphia.

Physical Director for University.—Dr. R. Tait McKenzie, of McGill University, Montreal, has been appointed Director of Physical Education in the University of Pennsylvania. He will assume his duties at the beginning of the college year.

Red Light Treatment of Smallpox.—A pavilion has been constructed at the Municipal Hospital for the treatment of smallpox patients by red light. If the method proves advantageous, facilities for its use will be provided at the new hospital now in process of erection. For the first time in two years a week has passed without the report of a case of smallpox. Renewed efforts will be made to stamp out the disease during the summer.

Dedication of University of Pennsylvania Laboratories.—In the presence of an immense crowd of physicians from all parts of the United States, the new medical laboratories of the University of Pennsylvania were formally dedicated on Friday, June 10. Shortly before this hour a special train brought from Atlantic City some 800 of the visiting members of the American Medical Association as the guests of the University. Among them were such distinguished representatives of the profession abroad as Prof. Albert Hoffa, of Berlin; Dr. A. Maitland Ramsay, of Glasgow, and Dr. M. Miyushima, the representative of the Mikado of Japan, who is studying American methods of managing contagious diseases. Forming in line at Houston Hall the members of the faculty, headed by Provost Harrison, the alumni, and the guests marched to the steps of the new building. Here J. Vaughan Merrick, a trustee of the University, made the presentation address that formally gave the building to the University. He mentioned the great advances made by the University since it was removed to West Philadelphia thirty years ago. He said that the faith of the University in the highest ideals and its devotion to principles in seeking scientific truth and employing it in the service of humanity was embodied in the new building. Provost Harrison, in accepting the building, said he did so as a trust for the seeking of truth and the practical training of physicians. The University adds to her educational power the largest, best equipped, the most useful in interior plan and the most costly medical laboratory building yet erected, either in Europe or on the continent of America. He continued: "This great building bears no one person's name, and is the result of no single benefaction. It has been built up, rather, by numerous gifts, memorials and offerings, so that many hearts are turning toward this place to-day, and will rejoice with us all when I announce that no shadow of debt falls upon the new medical laboratories of the University of Pennsylvania." In the hall to be devoted to pathological histology the dedication speeches were delivered.

The Relation of Physiology to Medicine and Its Place in the Curriculum.—Dr. H. P. Bowditch, Professor of Physiology at Harvard University, who had been chosen to speak on the subject of physiology, said that the proper place of that branch would seem to be first as disease can be understood only when normal

functions are made plain. Anatomy demanded precedence, however, and the question is whether to place it first or give the two together. In Harvard the first three half years are devoted respectively to anatomy, physiology and pathology, an arrangement that has yielded favorable results. The greatest change in medical schools during the last ten or fifteen years has been the tendency toward laboratory instruction. This has been due to two reasons: (1) Medicine has followed the lead of chemistry and physics; (2) it has come as a reaction against too exclusive didactic teaching. The advantages are two, for power and for imparting information. What are the limits to this method of instruction? In the first place it is extremely costly. As an instance of this are certain experiments in metabolism if students are allowed to carry them through. Secondly, a considerable portion of the instruction must be given in didactic lectures. This brings up the question of how far didactic teaching trains the mental powers of the student. Dr. Bowditch believes that good lectures are a mental stimulus; they partially unfold a subject and invite thought on the questions involved. Recitations are even better than lectures as a means of instruction. Hence it can be seen that the laboratory has no monopoly on instruction. As to the relation of laboratory and lecture, the subject must largely determine this. In some, as nerve-muscle preparations, circulation of the blood, etc., the laboratory may be given first; in others, as metabolism and kindred subjects, lectures should precede the practical work. The reaction against didactic instruction is a good thing but in our enthusiasm we must not let the good things of former times be swept away.

Physiological Chemistry and Its Medical Value.—Dr. R. H. Chittenden, Professor of Physiological Chemistry at Yale University, said that laboratories are a true demonstration that medicine is an exact science. Under proper leaders they are a revelation to students and an inspiration for further investigation. The student here becomes confident; he proves things for himself and no longer has to take the mere words of a text-book. He is helped toward the freedom of mental supremacy. To those with exceptional minds they provide the means for the greatest discoveries. The laboratories being dedicated are a gain to the whole world as well as to the University. Medicine is two-faced; it is an empiric and it is a scientist. Real knowledge is a safeguard against quackery. Among the exact sciences physiological chemistry is one of the greatest and is destined to play an important part in medical education. There can be no clear or profound knowledge of pathology until the normal is comprehended and some phase of physiological chemistry is coming up at every turn. Dr. Chittenden then review in some detail the valuable results coming from the leadership and inspiration of Hoppe-Seyler in the laboratory of Strasburg. These illustrations he used to indicate the enormous latent power in a laboratory and to show the intimate relation between physiological chemistry and medicine; in the development of medical education the former will assume a more and more conspicuous position.

Pathological Anatomy.—Dr. George Dock, Professor of Medicine in the University of Michigan, a former teacher of pathology, spoke upon that phase of laboratory teaching. He traced the advance of that branch from its inception and referred to its brilliant future. He pleads for the further study of pathological anatomy by the student of clinical medicine. It is the bridge between the fundamental sciences and medicine. Practical teaching and laboratory methods are the topics of the day but they require material and time; the student's time in them is too short, but this should be arranged as well as possible. Sufficient teachers should also be furnished to properly handle the students and they should be trained teachers. The teacher should be also an investigator; his three qualifications are proper exertion, frequent exertion, and successful exertion. There are at present many demands for research workers alone but it is a pernicious idea that research work can be done only by hermits. Endowments to teaching laboratories are often of more value than to those for research alone. The idea that research work cannot be done by teachers is refuted by numerous brilliant examples. The same idea applies to hospitals; research hospitals are not necessary, though the means for research by the residents and staff ought to be furnished. The popular method is to furnish teachers with a number of "fellows." It is often better to give an overworked teacher a ten-dollar-a-week assistant than a "fellow" or two at a thousand a year. The neglect of pathological anatomy in the way of autopsies is a source of constant regret. An instance of this was in the war with Spain, where a half dozen autopsies would have soon settled the question of typhoid fever in doubtful epidemics. Large sums were spent for instruments to treat wounds that never came, while some of the largest hospitals did not possess a single autopsy instrument.

The Development of Laboratory Instruction in the University.—The storm of applause that greeted Dr. Horatio C. Wood, as he rose to speak, after being introduced by Dean Frazier as "the father of modern experimental therapeutics," must have warmed the heart of that veteran teacher who has given thirty-eight years of his life to the University. Dr. Wood briefly portrayed the development of laboratory instruction in the University from its inception. The term laboratory is often misused; in the older sense it means a place where experiments are performed. The first laboratory employed by Dr. Wood was the yard or stable of his uncle, Dr. Geo. B. Wood, and his instruments were made by himself or by a tinsmith. But here were performed experiments leading to conclusions that have never been disproved. Here was made the first investigation of a human disease upon animals ever undertaken and the results published in 1870, on thermic fever, are still classic. Little by little his laboratory facilities have grown since he was made Professor of Therapeutics in 1876, when he was given a janitor's room for that purpose, until the present magnificent quarters mark the climax. Of late years the word laboratory also means a workshop where students are taught. It is the only method for studying certain branches. The power of using delicate scientific instruments and noting the results is a great achievement. Dr. Wood made emphatic the point that though laboratories are essential, to the end the *man* is the important factor in teaching. One danger of modern laboratories is loading the man in charge with too much teaching. This can be averted only by properly increasing the teaching staff. In this way laboratories increase the expense of instruction. Endowments are now needed for medical as well as for other institutions; better a small laboratory with a large endowment than a large laboratory with a small endowment. Physicians are at fault in not securing money for our institutions; they fail to make known to the public the needs of—not ourselves but the people.

Inspection of the Laboratories.—Following the dedicatory addresses, the laboratories of physiology, pathology and pharmacology, which make up the new building, were thrown open for inspection by the visiting physicians. They have been described at length in a previous letter and detailed description is not now necessary. They are ready for occupancy, with the exception of installing instruments and other working paraphernalia. Pathological and physiological exhibits had been

arranged in many of the rooms for inspection. Only one opinion was heard from the inspecting guests: that for size, completeness and adaptability the new building excels anything heretofore attempted. After the inspection of the laboratory a collation was served at Houston Hall and at 10 P.M. the special train bore those who so desired back to Atlantic City.

CHICAGO.

The President of American Academy of Medicine.—Dr. Winfield Scott Hall, of Chicago, who has been elected President of the American Academy of Medicine, is the second Western man to receive that honor in twenty years. He has been professor of physiology in Northwestern University Medical School, this city, since 1895. He was born in Batavia, Ill., in 1861, and was educated at Northwestern and Leipzig Universities. He is a member of the Chicago Academy of Sciences and of other scientific and medical organizations, and is President of the American Medical Temperance Association.

Explanation of Chicago's Low Death Rate.—The low death rate of this city, which is fully two persons to the thousand less than that of New York, Philadelphia, Boston, St. Louis, or Baltimore, will be shown in all its bearings at the World's Fair at St. Louis. Health Commissioner Reynolds, of Chicago, will install the exhibit personally. It consists of a series of thirty charts, showing facts by comparative lines, four volumes giving blanks used by the department, photographs of the public baths and bathing beaches, and of the isolation hospital, and views showing the laboratory outfits for diagnosing diphtheria, pneumonia and other diseases. Assistant Commissioner F. W. Reilly, who prepared most of the exhibit, said: "Chicago reached its present low death rate by raising itself from the swamps, building a sewer system and introducing lake water from points as far as possible distant from pollution. It has cost the city $100,000,000 to do it. From a death rate of 73 to 1,000 in 1854, the rate has sunk to 15.43 in 1903, and it would have been barely 15 last year except for the Iroquois Theatre disaster." The chief gain has been in the rate affecting children under five years of age. This is closely associated with the department's inspection of milk and prosecution of offenders. The chart diagrams show that the following diseases are extinct or are diminishing in Chicago: Asiatic cholera, consumption, croup, diphtheria, measles, scarlet fever, typhoid fever, typhus fever, and whooping-cough.

Offer to State University of Harvey Medical College.—The University of Illinois may absorb the Harvey Medical College. A proposition has been made to the university that this school be turned over to it, as was the College of Pharmacy a few years ago, free of indebtedness. The President of Harvey College, Dr. Frances Dickinson, says the proposition was made to the Committee on Pharmacy, which was in session here about two months ago, and it is now under consideration by the medical committee of the University. Harvey College has been in existence for ten years, and during that time it has graduated twelve hundred students. Only 150 of these were full-term students, as the school is maintained for persons over twenty-one years of age, who desire to take special courses in evening studies.

Some Practical Points on Adenoids and Adenoid Operation.—At a recent meeting of the North Shore Branch of the Chicago Medical Society, Dr. E. F. Snydacker read a paper with this title, in which he said that the diagnosis of adenoids should never be made on symptoms alone; before operation was performed, adenoids should be seen or felt. It was by no means necessary to operate every case of adenoids. Often symptoms attributed to adenoids were due to dyscrasia, of which adenoids themselves were only a manifestation. When the child was under improper hygienic conditions, adenoids become enlarged and symptoms aggravated; by improving the child's physical condition, the need of operation was often obviated. As the child developed, and nose and pharynx became more roomy, adenoids also becoming smaller, the child very often got along nicely without operation. There was often no great urgency for operation in such cases; it was always best to await the effects of hygienic measures and development. Different methods of operation were matters of personal choice; an anesthetic, however, was always advisable, otherwise the operator could not be sure that all the growths had been removed. Recurrence of adenoids often was a euphemism for improperly removed adenoids. No child would submit to an operation, and allow the operator to investigate result, and, if necessary, do more, unless methods were used little short of brutal; therefore, an anesthetic was to be preferred. At times, adenoid operations were performed where the walls of the pharynx were merely scratched, blood gushed from the nose and mouth, but the offending body was not produced. After an adenoid operation the adenoids which had been removed should always be found. Before operation it was well to locate the growths and choose the instrument according to the nature of the growths. The only after-treatment was to keep the patient quiet, in a room free from dust. The only complication was acute otitis media. The danger of this complication was lessened by following the course outlined above.

Offer of Hahnemann Medical College to State University.—Hahnemann Medical College has also made application for affiliation with the State University, and hopes for a favorable answer at the present session of the Board of Trustees. This is a homeopathic college. Dr. George F. Shears, President, says that the purpose of the request is purely a scholastic one, as they want the privilege of a great university for their students.

Tuberculosis of the Nervous System.—Dr. Julius Grinker read a paper on this subject at a recent meeting of the Chicago Medical Society, in which he said that tuberculosis of the nervous system is almost always secondary to tuberculous disease in some other organ. Brain tuberculosis occurs either as an affection of its membranes or in the form of the so-called solitary tubercle. Of all tumors of the brain, tuberculous tumors constitute the great majority, and occur with greatest frequency in childhood. Their place of predilection is the posterior fossa. The symptoms of tuberculous tumors are the same as those of other varieties. As differential points might be given the tendency of tuberculous tumors to locate in the posterior fossa, to remain latent for long times, to appear multiple, to have remissions in the symptoms. A localizing meningitis cannot be differentiated from a small tumor.

CANADA.

Convocation at McGill University.—On the afternoon of June 10 the annual convocation of the Faculty of Medicine of McGill University was held in Windsor Hall, when Dr. T. G. Roddick, M.P., the Dean of the Faculty, presided. In addition to the presentation of prizes and medals won by the students in the various years, the conferring of degrees, the presentation of diplomas and Board of Health certificates, the degree of LL.D. was conferred upon Dr. Trudeau, of Saranac Lake, N. Y., in recognition of his services in medicine generally. Dean Roddick delivered the annual address, the farewell address to the students and incidentally

Dr. J. T. Halsey delivered his farewell address, as he has resigned from the staff of McGill and has returned home to New Orleans, to take a position on the staff of Tulane University. The students' valedictory was delivered by Dr. Robertson of the graduating year.

Fifth Year in Medicine in Ontario.—A change is desired by the Queen's Medical Faculty in the regulation of the Ontario Medical Council regarding the fifth year work at medical colleges. At present only students who get positions are exempt from the special fifth year course of lectures and demonstration. Queen's desires that this be changed and that any medical graduate be entitled to try the final council examination who has been a house surgeon for a year, or has served a year with a qualified practitioner, or has attended clinics in a recognized hospital for at least a year.

Convocation at Toronto University.—The annual convocation for degrees in arts, science and medicine was held on the afternoon of June 10 in the gymnasium of Toronto University. In the evening the Chancellor, Chief Justice Sir William Ralph Meredith addressed the annual gathering of the alumni of the University. He said that during the past session there had been in attendance in all faculties of the University 2,135 students, and of this number the medical faculty had furnished 721. Next year he thought that they might expect an attendance of 2,500. Reverting to the federation of the medical faculties of Toronto and Trinity, the Chancellor said that it had proved an unqualified success, and it was satisfactory that in a faculty of 90 members there was no friction. He congratulated the medical faculty on establishing a post-graduate course, at which there is now in attendance from different points in the province of Ontario about thirty practitioners. He also commended the course in public health, which the faculty will soon establish.

Medical Appointments at the Hospitals of Montreal.—The Board of Management of the Montreal General Hospital have made several changes in the medical staff of that institution. Drs. F. S. Patch and C. W. Anderson are the only members of the present staff who will remain for another year. Dr. R. P. Campbell, who was formerly attached to the house staff of the hospital and who is at present in Germany, will succeed Dr. W. G. Turner as medical superintendent. Dr. Turner has left on a visit to England and Germany, and in the meantime the duties of medical superintendent are being discharged by Dr. R. C. Patterson. The new members of the house staff who will commence their duties in September are as follows: Dr. R. D. Forbes, anesthetist; Drs. J. L. Robinson, J. C. Fysche, W. G. Ricker, J. A. Nutter, L. L. Reford, H. H. Kerr, H. G. Wood, physicians; Drs. A. C. Rankin and W. E. Ainley, locum tenens. The Governors of the Royal Victoria Hospital have made the following appointments to the resident medical staff for the ensuing year: Admitting officer, Dr. R. King; Physicians, Drs. R. Hardisty, D. McKechnie, J. C. Meakins, W. A. Lincoln; Surgeons, Drs. H. Church, F. McKenty, J. Coffin, J. A. Faulkner, D. C. Maclachlan; eye and ear, Dr. L. C. Lauchland; nose and throat, Dr. H. O. Howitt; gynecologist, Dr. J. Gorster; anesthetist, Dr. F. D. Charman; locum tenens in medicine, Dr. J. E. Gillis; in surgery, Dr. J. W. Hutchinson; externe in medicine, Dr. J. R. Rogers.

The Prevention of Tuberculosis in Montreal.—The Executive Council of the Montreal League for the Prevention of Tuberculosis is a progressive body and it is quite possible that Montreal is doing more in the way of looking after her tuberculous than any other place in Canada. In order that every detail may be properly looked after the Executive has recently appointed several small special committees. There will be the Dispensary Committee, having for its object the establishment of a dispensary to be operated at the outset in conjunction with the general work of the League. Alderman Ames, a progressive sanitarian, is at the head of this committee, and associated with him are Drs. Dube and Finley. The Sanitarium Committee is another having for its object the establishment of one or more institutions to provide accommodation for the incurable as well as the curable cases of the disease. Mayor Laporte is at the head of this committee, and he has associated with him Dr. E. G. Daganais and Dr. A. J. Richer. A third committee is the legislative committee, having for its object the obtaining of legislative measures from the municipal and provincial governing bodies, so as to secure improved sanitation in schools, factories, etc., as well as obtaining power to enforce the notification of advanced cases of tuberculosis, the disinfection of places after death and the enforcement of the anti-spitting by-laws. On this committee are Dr. E. Pelletier, secretary of the provincial Board of Health, and Dr. Laberge, M.H.O., Montreal. The fourth important committee is the Royal Commission Committee for the purpose of urging on the Federal Government the advisability of appointing a Royal Commission, composed of not more than five members, to study the scientific and social aspects of the tuberculosis problem, and also the best methods to be adopted in this country for staying the progress of the disease. Dr. E. P. Lachapelle and Dr. T. G. Roddick will be the medical members of this committee. Thus it will be seen that the Montreal League is fighting the battle against tuberculosis in a systematic manner, which will be sure to be effective and productive of the very best results.

GENERAL.

Fourth Pan-American Medical Congress.—The next meeting of the Pan-American Congress will be held in Panama the latter part of December. The Pan-American Congress meets every three years. It was started by Dr. William Pepper, of Philadelphia, Dr. C. A. L. Reed, of Cincinnati, Dr. Albert Vander Veer, of Albany, and Dr. H. L. E. Johnson, of Washington. The first meeting was held in Washington in September, 1893, the second in Mexico in 1896. The third was to have been held in Venezuela in 1899, but was given up on account of the war in that country. The place of meeting was changed to Cuba, but had to be postponed until 1901 on account of the fever there. These meetings have always been well attended, and it is thought that Panama will be an interesting place for the convention. Further particulars will be sent out from time to time to the journals, together with notifications of the different officers appointed to represent this and other countries.

Yellow Fever.—Dr. Edward Souchon, president of the Louisiana State Board of Health, is in Washington in consultation with Surgeon-General Wyman and other renowned sanitarians. He does not consider the yellow fever problem settled. The excellent system of maritime quarantine and inspection, has prevented its ingress, but there has got to be an equally good system of land quarantine if we are to avoid danger from Mexico. A long frontier with only a shallow river to cross facilitates the spread of fever from that country. At the present time the disease has made its appearance in one or two Mexican localities. Curiously enough, too, the time of the appearance of yellow fever has changed considerably. Some years ago it was customary for it to show in May or June, but latterly it is as apt to manifest itself in August or September.

The Exhibits at Atlantic City.—To those who remembered the orderly and well-arranged exhibit of drug

manufacturers, publishers, instrument makers, etc., at Saratoga year before last and the excellent showing made at New Orleans last year, the exhibit this year was far from being satisfactory or up to the standard. It was badly arranged, inordinately crowded and not as representative as in the few years past. Some of the most representative drug firms had no exhibit at all, and even those who were there were too crowded to make an adequate showing. There is unquestionably a function of much importance in these exhibits. Particularly valuable is it to see the recent instruments, new forms of electrical appliances, new vibratory machines, new books, and even new remedies, if non-secret in their composition. A few features of special interest attracted our attention. The excellent showing of sick-room apparatus, by Meinecke, bed pads, etc., suggest that the Association authorities could encourage an extension of this type of advertising. The goods shown are useful to the physician and appreciated by the patient. In this line an ingenious commode bed was exhibited by a Dr. Heatley, of Glasgow. It was so arranged that a patient confined to bed did not have to move from a commode that was mechanically put in place beneath him. It seems worth trying, so that the limits of its usefulness may be determined. The various forms of vibration apparatus were objects of much attention. They merit careful examination, for vibratory massage has come to stay in therapeutics. Moreover our patients demand that the physician shall *do* something for them—other than give them drugs. The electrical exhibits were not as extensive as in former years.

Dr. Rush Statue Unveiled.—A bronze statue of Dr. Benjamin Rush, the noted Pennsylvania physician, philanthropist and patriot, presented to the United States Government by the American Medical Association, was formally unveiled last Saturday on the grounds of the Naval Medical Museum and accepted by President Roosevelt. Many members of the American Medical Association were present, as were also members of the Cabinet and other officials. Dr. J. C. Wilson, of Philadelphia, on behalf of the association, delivered a fitting tribute to Dr. Rush. In his speech of acceptance President Roosevelt said in part: "I accept, on behalf of the nation, the gift so befittingly bestowed by one of the great professions—this statue of a man who was eminent not only in that profession, but eminent in his service to the nation as a whole. Dr. Benjamin Rush was not a specialist in the modern sense. He could not be. There were not any specialists in the modern sense, as you pointed out. There was no possibility of there being such. But I would like, in this age of specialization, to say one word in the way of a short sermon to eminent specialists. To-day no specialist in a democratic country like ours can afford to be so exclusively a specialist as to forget that one part of his duty is his duty to the general public and to the State. Where government is the duty of all, it of course means that it is the duty of each, and the minute that the average man gets to thinking that government is the duty of somebody else, that minute the republic will begin to go down. It is a fortunate thing for our country that we should have before us the lives of men like Rush, who could take a part in our public life as distinguished as is implied by his having been a signer of the Declaration of Independence, and yet to do it without a particle of neglect of the man's own proper duties."

OBITUARY.

Dr. V. H. MOORE died at his home in Brockville, Ont., on June 8, at the age of fifty-six years. He had been in failing health for the past few years, but recently had sufficiently recovered to resume his practice. He was stricken suddenly with heart failure. The late Dr. Moore was graduated from Queen's College, Kingston, in 1870, and practised continuously from that time in Brockville. He devoted much of his time and energy to Queen's, of which he was a stanch advocate and champion. In 1889 he became vice-president of the College of Physicians and Surgeons of Ontario, and president in 1890. He was also made a Fellow of the Royal College of Physicians and Surgeons of Kingston in 1890. He was made an LL.D. of Queen's in 1903, and was a past president of the Canadian Medical Association.

Dr. ROLLO CAMPBELL, of Montreal, a prominent young practitioner of that city, and a son of Dr. F. W. Campbell, dean of the medical faculty of Bishop's College University, died last week in that city of typhoid fever. Deceased was about forty years of age and was graduated from Bishop's College in 1886 with honors, and later studied in Edinburgh. From the time of his graduation Dr. Campbell was connected with the teaching staff of his alma mater, and for many years was on the consulting staff of the Montreal Dispensary. He was also one of the assistant surgeons of the Western Hospital, and surgeon of the Fifth Royal Scots.

SOCIETY PROCEEDINGS.

THE AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, held at Atlantic City, N. J., June 7 to 10, 1904.

SECTION ON MEDICINE.

SECOND DAY—JUNE 8TH (*Continued*).

(Continued from Page 1143.)

Arteriosclerosis and Angina Pectoris.—Dr. William Osler said that though arteries are usually not associated with painful conditions there are a number of arterial lesions that give rise to severe pain. Edward Jenner, the discoverer afterward of the value of vaccination, was the first to find at autopsy the arteriosclerotic changes of the coronary arteries that are so commonly associated with angina pectoris. Dr. Osler says associated with advisedly, for there are cases of bad degeneration of the heart arteries and their symptoms of arteriosclerosis without any symptom of angina, and on the other hand a certain number of cases of true angina with fatal issue without any changes in the coronary arteries. Changes in various arteries of the abdominal cavity may give rise to attacks of paroxysmal pain resembling angina. On the other hand it must not be forgotten that true angina with lesions in the heart may give rise to pain in the abdomen deserving the name angina abdominis.

Other Arterial Pains.—In migraine there is often an arterial element perhaps consecutive to the attacks but with degenerative associations. The numbness and tingling associated with arteriosclerosis in those of advancing years may give rise eventually to the painful forms of Weir Mitchell's disease. There is a painful conditions of the legs which merits the name of angina cruris rather than that of intermittent clandication which has been given to it. It is associated with degenerative changes of arteries. In old people with arterial changes there is apt to be discomfort in the legs and these same phenomena accompany Bright's disease after arterial changes have occurred and also are seen in diabetes.

Syphilitic Angina.—Dr. Osler considers that there is a definite group of cases of angina dependent on changes in the arteries in and near the heart associated with syphilitic changes. The lesions are noted charac-

teristically at the root of the aorta and at the openings of the coronary arteries. The condition is found usually in young men under thirty-five years, with a clear history of syphilis. The therapeutic outlook in these cases is so hopeful that Dr. Osler thinks they should be emphasized lest any of them should be missed, for a mistake in diagnosis might mean loss of life.

Treatment of Arteriosclerosis.—Dr. J. M. Anders, of Philadelphia, said that the treatment of arterial degeneration must be first of all preventive. Where hereditary elements are at work prophylaxis should begin very early in life. In general there must be avoidance of all excesses. Alcohol in quantities and excessive consumption of nitrogenous foods are fruitful sources of arteriosclerosis. Besides excess of manual labor must be avoided, for it is very generally accepted now that overwork, especially physical exertion to the limit of strength and endurance, is one of the most potent factors in the degeneration of arteries. Dr. Anders considers that the present tendency to overdo athletics at colleges and universities is almost sure to impair seriously the health of the rising generation, and this impairment will be brought about mainly through the arteries. The medical profession of this country should consider it a precious duty to warn young men and those to whose charge they are committed of the serious dangers impending in this matter. Once degeneration of arteries has begun it is indeed difficult to prevent its progress, but absolute prophylaxis is possible.

Physical Therapy.—Even after arteriosclerosis has begun certain things can be accomplished for its relief. The sluggish circulation may be stimulated by warm baths and by gentle massage. For many, part of the difficulty which favored the development of arteriosclerosis is due to the fact that toxic substances in the blood are not properly diluted by a sufficiency of fluid. All arteriosclerotic patients in early stages should be advised to drink plentifully of water—a habit which it will very often be found they have never had. Where the sclerotic changes are more advanced, however, the movement of large quantities of fluid in the circulation becomes quite difficult and then this advice as to free consumption of fluids must be given with more circumspection.

Etiology of Arteriosclerosis.—Dr. Alfred Stengel, of Philadelphia, in opening the discussion, said that the cause of the condition is not single nor the combination of causal elements yet understood well. Alcohol and overwork are important, though the basis of the pathological changes may originate in one of the infectious diseases such as typhoid fever. Years ago Dr. Stengel was surprised to have Sir Wm. Broadbent say that the convalescence from typhoid fever should be prolonged even to a year or eighteen months. Now he understands better the necessity for this. Dr. Stengel considers that the modern overcultivation of athletics is sure to prove a fruitful source of arterial degeneration in some of the most promising of the rising generation.

Responsibility and Arterial Degeneration.—Dr. Frederick C. Shattuck, of Boston, said that not alcohol alone or overwork alone but a combination of factors produces arteriosclerosis. In Scotland and in Scandinavia much alcohol is consumed, yet these countries are not especially likely to have a number of deaths from arteriosclerosis. There life is taken more quietly. It is the rush and stress, the Sturm und Drang of existence, as the Germans call it, which is so noteworthy in America that causes early degeneration of arteries. Dr. Shattuck believes that a series of autopsies on the captains of industry would show this. It is, however, not responsibility itself that is so serious in these cases but the fact that responsibility is not well borne. It is worry, not work, that kills, and the path of death is in this case failing organic involvement elsewhere through the arteries.

Inseparability of Vessels and Kidneys.—Dr. Kraus, of Memphis, Tenn., said that the beginning process of sclerosis in the arteries is a split in the intima with subsequent formation of connective tissue. This is undoubtedly due to high tension, but it is manifestly impossible to separate the kidneys and the vessels in the process. The retention of excrementitious products seems to favor the increase of blood pressure, while any degeneration of arteries affects also the delicate arteries of the kidney structure. Infectious diseases, malaria and yellow fever, quite as well as some of the others mentioned, serve to begin the process which then progresses with every occasion.

Dr. Stockton, of Buffalo, said that for treatment purposes the diagnosis must be made early. Progress may be arrested even when the disease is far advanced. The nitrites are valuable but must be given frequently; nitroglycerin every hour. The iodides are also valuable remedies.

Mitral and Tricuspid Stenosis.—Dr. Judson Daland and E. L. McDaniel, of Philadelphia, collected 186 cases of associated tricuspid and mitral stenosis and discussed their symptomatology. Most of them seem to occur in hearts overdistended as the result of attempts at compensation after endocarditis and simple mitral disease. The mechanism of the associated lesions is apparently essentially protective.

Pleural Effusion in Heart Disease.—Dr. J. Dutton Steele, of Philadelphia, pointed out that hydrothorax due to cardiac disease occurred more frequently on the right than on the left side. In searching for the reason for this Dr. Steele considers that the causative factor is the pressure exerted upon the vena azygos major not directly but by the pulling of the enlarged heart upon the vena cava. Such painless effusions into the thorax always point to the existence of cardiac disease. The fluid nearly always accumulates rapidly after tapping. It seems better, however, to tap, than to have recourse to drugs for the purpose of securing its removal by other means. Dr. Steele reported a series of cases of hydrothorax, showing the position of the lesion and the course of the case.

Prolonged Delirium in Pericarditis.—Dr. E. M. Green, of Easton, Pa., recalled attention to the fact that pericarditis frequently gives rise to protracted delirium and that this symptom may in the absence of other noteworthy signs sometimes call attention to the possibility of pericarditis being present. Dr. Green reported a case of continuous delirium for five weeks not accompanied by marked fever though there was endocarditis. The patient recovered completely and has remained perfectly well without any untoward sequelæ ever since. Within a few months after recovery he was able to exercise freely at an elevation of 10,000 feet.

Limitations of Digitalis.—Dr. Frank Jones, of Memphis, Tenn., discussed the limitations of digitalis in heart disease. In mitral regurgitation digitalis is the most helpful of drugs whenever symptoms are present. On the other hand, in aortic regurgitation it is likely to do more harm than good. The false principle of giving digitalis whenever there is heart disease with symptoms, Dr. Jones considers, cannot be condemned too much. In mitral insufficiency it is the right heart that suffers and the toning up of the heart muscle as well as the toning up of heart nerves are important indications. On the other hand, when there is passive hyperemia and venous stasis the condition is sure to be benefited by digitalis. In aortic regurgitation, however, the left ventricle, owing to the thickness of its muscle

and its capacity for development, is able to compensate up to the limit of vitality and maintain the compensation for a long time. To further whip this willing muscle into activity is like whipping a willing horse overloaded at the foot of a hill.

Aortic Conditions.—As a rule, in disease of the aortic valves there is accompanying arteriosclerosis with involvement of the coronary arteries. Under these conditions the blood supply to the heart is much weaker than it should be. If digitalis be administered the heart is nevertheless asked to do extra work, though it is already in need of nutrition for the work that it is doing. When compensation fails then the left ventricle goes all to pieces; not one part more than another, but everywhere, as Dr. Holmes' wonderful "one-hoss shay." Dr. Jones considers that there is never any justification for the use of digitalis in aortic regurgitation, no matter what the condition of the heart muscle may be. Not infrequently, however, in aortic regurgitation there develops a condition of sleeplessness with dyspnea with marked anxiety. In these cases there is need of a stimulant and, owing to the association of digitalis with heart disease, there is a temptation to use the drug. Fatal results in such cases from its use, however, are not uncommon. Dr. Jones has found nitrate of strychnine of great service in such cases and the indications are for this substance, which tones up the nervous system through the heart and through the vagus.

Morphine with Digitalis.—Dr. James Tyson, of Philadelphia, said that he agreed with Dr. Jones in the main, though as the proof of the pudding is in the eating so the proof of remedial measures is in their application to a special case. Dr. Tyson finds one exception to the general law with regard to the danger of digitalis in aortic disease when there is loss of compensation and both aortic and mitral valves are leaking. If patients are then put in bed and given small doses of morphine, usually not more than one-eighth grain, to which atropine is added, the resulting quietude will soon be noticed. If now digitalis in small but gradually increasing doses be administered without looking for effects too soon, certainly not before the second or third day, the good effects will be surely noted. It is not easy to know the theory on which digitalis does good in such cases, but of the correctness of the practice there is no doubt.

Combination of Aortic and Mitral Disease.—Dr. Richard Cabot, of Boston, said that theory must count for little in the application of drugs for heart disease, and that experience is everything. Personally he has found that digitalis in mitral disease nearly always does good. In aortic regurgitation it as constantly does harm. This is especially true in old persons whose arteries are degenerate or in advanced forms of aortic disease. In young persons suffering from mitral and aortic disease due to rheumatism or some such infectious process digitalis undoubtedly does good, but not so much good as in primary mitral disease. Other combinations of aortic and mitral disease seem also to be benefited by the use of the drug if its administration is not delayed until too late in the case.

Heart Strong, Compensation Failing.—In certain cases circulation failure becomes manifest notwithstanding the fact that the heart continues to beat strongly. In these cases it is important to take off the brakes. This can be done by relieving the circulation of some of its contents by means of purgation and by free diuresis. This method of treating such circulatory disturbances was very familiar to the older physicians and represents the mechanical solution of a serious problem, but is not often employed by the modern physician, who thinks too much of specific drugs for symptoms.

Importance of Rest.—Dr. De Lancey Rochester, of Buffalo, said that he is quite in accord with Dr. Jones as regards the general principles of the use of digitalis in heart disease and considers that a very important element in the treatment of heart affections is rest. The case mentioned by Dr. Tyson, in which there is decided break in the compensation with a combination of aortic and mitral disease will be helped just as much by rest as by digitalis with rest. Small doses of digitalis are very slow to act and do not accomplish near as much as the absolute rest in bed. Dr. Rochester considers that mitral stenosis is also an indication for the use of digitalis and, indeed, to quite as great an extent as is mitral regurgitation. Digitalis, by lengthening both systole and diastole of the heart, gives a longer time and thus enables the auricle to accomplish its work notwithstanding the obstacle in the way.

Dangers of Digitalis.—Dr. S. C. James, of Kansas City, said that to most physicians the word heart disease means at once the use of digitalis; as a consequence digitalis has probably done more harm than good, though there is no doubt that it is a very valuable drug. It would be much better for physicians and their patients, however, if the word heart disease were always associated with the idea of free movements of the bowels, the use of laxatives instead of digitalis. Dr. James has found compound licorice powder and compound jalap powder of more service than digitalis in advanced cases with severe symptoms.

Dr. E. F. Wells, of Chicago, said that severe cases of heart disease are much more amenable to treatment than is usually thought. Great benefit can be secured for lost compensation. When the patient is found with limbs much swollen, sitting in a chair, unable to sleep lying down, and resting very little in any way, morphine in small doses, sometimes not more than one-sixteenth of a grain being necessary, will secure sleep for the patient for hours. Better than any other remedy in conjunction with this, is a cathartic that will produce watery movements. Dr. Wells prefers elaterin, grain one-eighth to one-tenth every three hours, until six or eight watery stools are secured. If, after this, water is removed from the feet by means of punctures, the patient will be made quite comfortable. Then, after forty-eight to seventy-two hours, digitalis may be given with good results.

Venesection.—Dr. J. Sailer, of Philadelphia, said that in his observation aortic disease is more frequent than mitral disease in the ratio of about three to two. Hence the danger arising from the use of digitalis, if the existence of heart disease is to be considered a sufficient indication for the employment of that drug. Personally he believes in taking off the brakes but does not consider that violent purgatives, or the use of diuretics, is always to be counseled. The old writers counseled venesection in these cases and it is wonderful how much can be accomplished for the relief of a laboring heart in advanced stages of heart disease, by free venesection.

Ergot in Heart Disease.—Dr. A. T. Livingston, of Jamestown, N. Y., said that in advanced cases of heart disease, there is prone to be a relaxation of the unstriped muscular fiber in the walls of the arteries. A large amount of the energy exerted by the heart goes to waste then because of the flabbiness of the arteries. This can be overcome by the use of ergot which contracts and tones the relaxed muscle fiber in the vessels all over the body and thus makes the heart efforts much more effective than they were before. Unfortunately ergot has come to be associated with only one use in medicine and it is very seldom thought of in relation to a laboring heart with lack of compensation.

Degeneration of Arteries.—Dr. E. M. Webster, of Chicago, said that aortic disease is very often a result of

the spread of some infectious process, or perhaps a syphilitic process, from the arteries. In such cases no drug could possibly do more harm than digitalis.

Dr. Coleman, of Iowa, said that digitalis does good in cases of aortic disease not associated with arterial change. When there are degenerative changes in either the vessels or the heart itself then digitalis must not be used, or it will do harm. In simple aortic valvular disease, however, without vascular changes, the drug may be of good service.

Dr. Anders said that daily purgation in heart disease is more important than almost any other detail of treatment.

Pitch of Respiratory Sound.—Dr. Charles E. Quimby, of New York, said that while pitch is the element of sound in respiratory diseases most relied on for diagnostic purposes, the common statements to be found in text-books of physicial diagnosis as to the pitch of the sounds heard in normal and consolidated lungs are erroneous. Dr. Quimby showed that the pitch of normal respiration should be stated as inspiration having a high and expiration a low note. During consolidation, the pitch of inspiration is lowered until inspiration and expiration are of the same pitch. Though it is the custom for practically all teachers of physical diagnosis to talk of the expiration in affected conditions of the bronchi, and especially in consolidation as being higher than inspiration, this is never true. Nor is it true in such conditions as emphysema. The laws of acoustics with regard to the pitch of notes varying according to the length and general size of tubes is in accord with Dr. Quimby's differing statement of the real condition of affairs.

Dr. Richard Cabot, of Boston, in discussing Dr. Quimby's paper, said that personally he has written on the subject of physical diagnosis and having spent much time at music, considers that he is in a position to judge of the pitch of breath sounds. In his teaching and writing he has considered that the ordinary statement is correct. Dr. Cabot calls attention to the fact that the pitch of a violin string may be changed without shortening or lengthening it merely by the greater pressure applied by the bow.

Dr. Quimby, in closing the discussion, said that the example of the violin string is unfortunate, since the laws of acoustics as applied to strings in vibration are very different to the notes of a vibrating column of air within a tube, the pitch of which depends absolutely upon the length of the tubes. He has never found that any one who would take the pitch of the respiratory sounds with a tuning fork would fail to agree with him in his radical difference of opinion from those who ordinarily teach physical diagnosis. Very much has been said with regard to sounds in physical diagnosis that is of no value. Some time ago two important teachers of physical diagnosis in New York were teaching within a short distance of each other, that the pitch of the percussion note in emphysema was higher than normal, the other that it was lower than normal. Fortunately for professional dignity and student faith both of them were correct and each of them was wrong.

THIRD DAY—JUNE 9TH.

SYMPOSIUM ON GALL-BLADDER DISEASE.

Etiology of Cholelithiasis.—Dr. Walter L. Bierring, of Iowa City, Iowa, said that the origin of stones in the gall-bladder can be traced in practically all cases to some preceding infectious disease. It might seem as though the gall-bladder by its position was protected from the invasion of bacteria from the digestive tract and that the qualities of the bile itself would further aid in its protection. As a matter of fact, however, the entrance of infectious material is very common. In over 50 cent. of the fatal cases of typhoid fever, in which this point has been carefully investigated, these bacilli have been found in the gall-bladder. On the other hand, traces of the bacteria are constantly found in gall-stones and practically always they form around bacterial products as a nidus. It is not the mechanical precipitation of salts from the bile that used to be thought of, but a true microbic process. Ordinarily the presence of gall-stones leads first to a prevention of contraction on the part of the gall-bladder and thus prevents the proper drainage of the viscus. As a consequence there is an increase of opportunities for infection and cholecystitis is not uncommon when gall-stones are present. By some it is considered that the activity of gall-stones is practically always preceded by cholecystitis and that this is the beginning of the discomfort. As a matter of fact, however, gall-stones may remain undisturbed during a long life and be found only at autopsy. This is true both for large single stones and for many smaller ones, so that it is evident that some other causative agent must be present to arouse stones into activity. The same thing is true with regard to the general etiology of gall-stones.

Contributing Causes.—One of the most important contributing causes has something to do with the sex of patients, since gall-stones are much more common in women than in men. The proportion is three to one or five to one according to various observers. Indeed, gall-stones are like floating kidney, a special attribute of the sex. There are certain good reasons for this. The wearing of the corset constricts the liver and interferes with the circulation of bile, thus preventing proper drainage of the biliary system and facilitating the occurrence of bacterial concretions. Child-bearing, sedentary habits and constipation disturb abdominal circulation and intra-abdominal pressure in various ways, so as to produce like effects. After sex an important predisposing quality is obesity. It occurs particularly in connection with habits of free eating and it is often complicated by nephritis, which is, indeed, the common cause of fatality in operations on the biliary tract. As the result of the over-eating of fat, bile salts become rich in certain salts that may be precipitated and lead to the formation of stones. For a time olive oil was considered advantageous in the treatment of gall-stones, but it has been shown that when dogs are fed on fat almost exclusively small concretions occur in the gall-bladder without infection being demonstrable and no bacillary products are found in the stones themselves. As a rule, some disturbance of digestion seems to be associated with the formation of gall-stones, and this should prove an important hint for the prophylaxis of this pathological condition.

The Gall-bladder, Stomach and Intestines.—Dr. Bertram W. Sippy, of Chicago, discussed the relation of diseases of the gall-bladder and bile ducts to disorders of the stomach and intestines. As the bile passages are situated so near the stomach and upper part of the intestines confusion of symptoms is not unusual. Gall-stones may simulate cramp of the intestines and may bring about vomiting and nausea or even bloody vomiting with a suggestion of ulcer of the stomach or may suggest stenosis of the pylorus. It may even bring about reflex dilatation of the stomach with delay in the progress of food and consequent tetany. The reflex action of the irritation of gall-stones may be seen very well in the epigastric distention noticed after an attack of gall-stone colic which is due to paresis of the muscle of the intestinal walls. This may go even to the extent of paretic ileus on a reflex basis. On the other hand, reflex cramp in the pylorus may be set up simulating a stenosis of this portion of the intestinal tract.

Stomach Symptoms.—The acidity of the gastric secretions has been said to be increased as the result of the irritation of the presence of gall-stones. This would add another element of confusion as regards the differential diagnosis of ulcer of the stomach, since both diseases present pain and tenderness. This hyperacidity, however, has not been seen in a sufficient number of cases to be considered absolute; lactic acid is said sometimes to be present, but unless, where there has been some dilation or motor insufficiency in the stomach, this must be a surprise. Certain pathological conditions in connection with the bile tract are important. Adhesions to neighboring structures, which, of course, will nearly always involve the stomach in some way, are said to occur even after simple cholangitis. When gall-stones are present adhesions are very frequent and are said to occur in 75 per cent. of all cases. The gastralgic pains which are so often said to be due to adhesions in these cases are not necessarily so, and may be relieved by operation. Bands of obstruction which are sometimes found at operations upon the stomach and intestines, can nearly always be traced to a severe cholecystitis, the history of which will be found some years before.

Simulation of Stomach Disease.—Affections of the biliary tract may simulate tumor of the stomach and be considered to be cancer of that organ. As the result of the conditions which developed in connection with gall-stone disease, benign stenosis of the stomach may occur and patients be allowed to die under the false impression of malignant disease, though they are really suffering from a relievable condition. Fistulæ of the gall-bladder and ducts may occur in connection with nearly every part of the intestinal tract and are much more frequent than used to be thought. Occasionally, affections of the stomach in association with a gall-bladder disease are quite tractable, even by medical means. When the contraction of the pylorus is reflex, patients may be put to bed and by means of rectal feeding complete rest given to the upper part of the digestive tract. After a time it will be found that small quantities of milk can be taken and that the motor sufficiency of the stomach is resumed, even in cases where sarcinæ have been present. Gradually the amount of food taken may be increased and so the irritative contraction of the pylorus overcome. At times, too, when the stones are removed from the biliary passages the plastic exudate thrown out around them may be reabsorbed. The outlook then is not always as alarming as has been thought.

Gall-stones and the Intestines.—Occasionally, surprising as it may seem, gall-stones occlude the intestinal lumen and cause symptoms of obstruction. Fifty per cent. of these cases perish. On the other hand, ileus may be set up, not entirely because of the size of the stones, but because of the irritation it produces. One stone, 9 by 13 cm., passed to the anal region before it was stopped. Usually the place of stoppage is at the ileocecal junction where the lumen of the intestine is smallest. The ileus which occurs is due to the paresis of the intestinal walls as the result of irritation. Very large stones ulcerate their way from the gall-bladder into the intestines and the process is so slow that there may be no history of the passage of gall-stones. In gall-stone ileus there is usually less shock and prostration than in other forms of intestinal obstruction, and while there is fecal vomiting there is usually also a number of passages from the rectum. As to the differential diagnosis of ulcer of the stomach and duodenum and cholelithiasis, it is prone to be very difficult. Icterus is sometimes said to be a pathognomonic sign of gall-stones, but in reality is relatively rare, occurring, according to Riegel, only in 10 per cent. of the cases of gall-stones. Vomiting of blood, on the other hand is not pathognomonic of ulcer, for it does not occur in all ulcers, and has been noticed in gall-stones without any stomach lesion. Examination of the stomach contents may be of assistance. If the secretions are normal and the motility good after a testmeal, it speaks against any affection of the stomach and points to gall-stone disease. All symptoms of these cases, however, must be studied in order to make the differential diagnosis of these affections.

Surgical Diagnosis of Gall-bladder Disease.—Dr. Parker Syms, of New York, said that one out of every ten persons has gall-stones. In only about five per cent. of those who have them, however, are there any symptoms. Most of those who have any symptoms present classical types of the disease. Some patients, however, have anomalous symptoms and the true significance of their affection is missed. As Dr. Lambert, of New York says, the gall-bladder represents a mysterious realm of surgical romance in the right upper quadrant of the abdomen. The most characteristic symptom of gall-stone, is pain which may be relieved by eating, which occurs most often when the stomach is empty and the relief of which is usually followed by the passage of gas from the intestine. The character of the pain is rather typical. Patients describe it as a boring through the abdomen to the vertebræ. The maximum of pain is felt just below the free border of the ribs. The point of greatest tenderness, as pointed out by Mayo Robson, occurs on a line from the ninth rib of the umbilicus, and is definitely located here, even when for some reason there is displacement of the gall-bladder because the tenderness is really due to nervous reflexes. According to Kehr and others, pain is due to the inflammatory condition of the gall-bladder. According to Murphy, it is due to the irritation of the stone itself. Subsidence of pain is usually welcomed as the end of an attack. As in appendicitis, however, it may be due to gangrene, or perforation of the stone through the bile tract, with serious results. At one time it was thought that the X-rays would prove a valuable diagnostic aid in the recognition of gall-stones. This agent has proved unsatisfactory, however; whenever the X-ray verdict is positive it settles the question; negative X-ray evidence, however, is not conclusive.

Differential Diagnosis of Gastric Ulcer.—Owing to the fact that gall-stones may produce acute indigestion, they may simulate gastric ulcer very completely. Usually, however, the point of maximum tenderness in gastric ulcer is higher up and is in the median line in connection with ulcer. The chill and fever common in gall-stones are absent in ulcer. The pain of ulcer occurs after the taking of food, while gall-stone colic occurs at night when the stomach is empty. The absence of tenderness at Mayo Robson's point is of value.

Differential Diagnosis of Appendicitis.—When the appendix is displaced it may be necessary to diagnosticate between affections of this order and the gall-bladder. There is a difference in the character of the pain, which is not so boring in appendicitis and which does not radiate toward the shoulder as does gall-stone colic. There is besides in appendicitis an extreme rigidity of the right rectus muscle. Reflex vomiting is more common in appendicitis and there is an absence of any tendency to jaundice. Where the condition is not fulminant a wait of twenty-four hours will usually determine the question, since the gall-stone patient will usually be much better at the end of that time than the sufferer from appendicitis.

Other Painful Abdominal Conditions.—The differential diagnosis of stone in the kidney may be made

by the different character of the pain, its different radiation and the absence of tenderness at the Mayo Robson point. Pancreatic colic causes pain in the median line or on the other side of the abdomen and usually with the presence of fat in the stools. Phlebitis portalis, that is, inflammation of the portal vein, may occur after neglected appendicitis and is diagnosed by the history of the patient and by the existence of a septic temperature.

Local malignant disease of the stomach may be differentiated by careful examination, but often an exploratory incision will be necessary. Empyema and subphrenic abscess are sources of confusion in diagnosis, but usually the general condition of the patient, the temperature curve and the extension of dulness upward in the liver region are sufficient to make the differentiation. It must not be forgotten that in certain cases of angina pectoris there may be acute abdominal pain, referred to the region above the umbilicus rather than to any part of the thorax. In these cases an examination of the heart will usually disclose the existence of a serious heart condition with which the pain is associated.

Surgery of Gall-stones.—Dr. Lucius W. Hotchkiss, of New York, said that while much has been attempted in the matter of dissolving gall-stones by various means, little if anything has been accomplished. It has been found that when the gall-bladder is healthy, as in dogs, gall-stones placed therein are gradually dissolved. Once the gall-bladder has become infected, however, stones are not dissolved. It has been thought the use of bile might prove of service in aiding the gall-bladder to dissolve stones and to some extent good has been accomplished in this way. It is, however, of very limited application; at one time was considered to be of great service but has not fulfilled the hopes of those who used it and indeed seems to have a tendency to increase the amount of bile salts and thus lead to the deposition of material in the gall-bladder. The Carlsbad cure still does good, and it is evident that a plentiful supply of water with a certain amount of laxative action is the best medical therapeutic measure there is for gall-stones. At the present time, the treatment of gall-stone disease lies between this form of hydrotherapy and surgery. It is encouraging to find that at the present time there is much less tendency to the production of the opium habit and much more recourse to active surgical measures.

Early Diagnosis.—The future of the proper treatment of gall-stones lies in prompt diagnosis rather than in an improvement of the technical operation. Where cases are uncomplicated, the mortality of operation at the present time is low and is mainly accidental. Danger lies in delay in recourse to surgery, since complications develop. Where there is only one small stone there may be a very slight tendency to disturbance and this may be relieved by the passage of the stone. Even where there have been several attacks with stones passed at each one but at long intervals, surgeons are inclined to wait. Where, however, attacks are recurring at shorter and shorter intervals, then the ideal operation is cholecystectomy early in the case and the mortality of such operations is not high. Lilienthal has done 37 such operations, with only one death and that for another reason than the operation itself. It is evident then that surgery must be the recourse of those who would wish to treat this serious condition rationally and that the decision to permit surgical intervention early is almost sure to prove not only life-saving, in many cases, but also saving of complications and serious sequelæ.

(To be Continued.)

SECTION ON SURGERY AND ANATOMY.

SECOND DAY—JUNE 8TH.

(Continued from Page 1148.)

Factors in the Mortality of Appendicitis.—Dr. F. LeMoyne Hupp, of Wheeling, W. Va., in the discussion, said that one of the factors determining a fatal issue, where there has been a beginning diffuse septic peritonitis antedating the surgical interference, is a continuance of this process. Of the seven cases of this kind that have come under his care in recent years, and receiving operation, two have died in this way. Practically all other deaths in these cases are a result of well-known and recognized causes. Within the past four weeks there had come under his care a patient with appendicitis, who presented an unusual feature in his experience in these mortality factors. A boy, fourteen years of age, was admitted to his service in the City Hospital of Wheeling, W. Va., who had been treated by his family physician for typhoid fever for a period of eleven days prior to admission. His symptoms seem to have been typical up to the tenth day, when there was discovered an induration and localized tenderness in the right iliac region. On the day of admission (May 6), under chloroform narcosis, the usual incision was made and about an ounce of very offensive pus was removed from the retrocecal region. In the washing there escaped a tubular segment of the appendix vermiformis, much resembling a macerated piece of macaroni. A suspiciously dark area was detected over the cecum. Because of the profoundly collapsed condition of the patient no further interference was deemed advisable. Well-directed drainage was established and the patient removed from the table. Forty-eight hours after the operation the dressing was saturated with a dark, offensive, coffee-grounds fluid, and at times there seemed to be some fresh-looking blood with the exudate. The drainage strips were removed and there welled from the depths of the wound a quantity of decomposed, black blood clots. Collapse and death followed three days after the operation. The real interest in this case centered in the autopsy. No remnant of the appendix was discernible. A very extensive extravasation of old decomposed blood was found distending the cecum, ascending colon and part of the ileum. Peyer's patches exhibited the typical typhoid lesion and an eroded vessel in the base of one of these ulcers demonstrated the seat of the hemorrhage and the cause of death.

THIRD DAY—JUNE 9TH.

The Anatomy of Inguinal Hernia.—Dr. D. N. Eisendrath, of Chicago, presented two very large and perfect models illustrative of the anatomy of the inguinal region. He said that he had found these of great use in his teaching work and stated that sweater cloth of different colors was the best material for the purpose. He stated that the weak regions in the inguen depended on two factors, viz., (1) upon the degree of arch of the deeper muscles; and (2) upon the size and strength of the inner oblique. He gave an interesting and detailed description of the history of the operation for hernia and illustrated his method of teaching with the models.

Andrews' Technic.—The sum and substance of Andrews' operation is that he sews the external oblique, the internal oblique and the transversalis to Poupart's ligament behind the cord. He then places an imbrication stitch, which creates a fold of the aponeurosis of the external oblique about the cord; this latter structure, in other words, lies in the position usually occupied by it after the application of the Halsted technic, except that it is protected from injury, as it is not by

the Halsted method, by being folded under the tissue of the external oblique. The reader said that he believed that this operation gave greater strength to the weak parts without in any way sacrificing the cord, than any other known method.

Three Years' Experience with the Autoplastic Suture for Hernia.—Dr. L. L. McArthur, of Chicago, before stating the results of his 93 cases, passed around a most beautiful specimen which showed his method of separating the living ligatures from the fibers of the external oblique. As is well known, he bluntly dissects off two substantial threads from each side of the wound, which is made in a direction absolutely parallel to the fibers of the muscle. One of these is then used for the deep suture, the other for the superficial. The patients furnishing this series of 93 cases average in age from seventy-eight years to six months. The ingenious author stated in defense of the use of the living ligature that he had had an opportunity of examining the ligature after it had been *in situ* for six months in a patient who had aptly died of some extraneous disease. So far as could be observed from the histological condition of the tissue, the fibrous thread was as thoroughly alive as when it was separated from the external oblique. Furthermore, he stated that in the event of suppuration taking place, the condition would be no different from that which obtains if catgut ligature had been used. The fibrous autoplastic suture would simply die and be absorbed.

Dr. William B. Coley stated that the need for Dr. McArthur's technic had in a measure passed by. If it had come to the notice of the profession (which unfortunately it did not) ten years ago, when sterilization of absorbable materials was not so far advanced, it would have been a more invaluable addition to surgery than it at present constitutes. He believed that the kangaroo tendon prepared by modern methods could be made as sterile as the autoplastic suture, and there was this in favor of it, that it was not prepared during the time of operation.

Dr. E. W. Andrews, of Chicago, said that his method of doubling the external oblique over the cord was merely the application of an old and well-known technic to this particular operation. The principle had been employed by Mayo in his well-known operation for the relief of ventral hernia, and he believed that, while the ordinary Bassini might give equally satisfactory results in the average run of cases, still there were undoubtedly a large number of patients whose belly walls were extremely deficient. In this type of patients, the imbrication stitch allowed the triple protection of the weak area by affording a guard to the cord.

The Autoplastic Sutures Live.—It had been his privilege to see the sections reported by Dr. McArthur, and in his opinion they were very much alive at the time of the patient's death. He believed that the utilization of the living sutures had a great future, not alone in hernia, but in many other operations as well. There seemed no reasonable doubt that the living cord woven between two tissues could hold them together better than one which stayed in the parts only until union took place and was then absorbed.

Dr. Bloodgood, of Baltimore, complimented Dr. Andrews very cordially upon his imbrication method. He said that Dr. McArthur was a sort of peace commissioner in the matter of herniotomy, because he employed no definitely fixed operation, but utilized any technic for his autoplastic suture. He said that of course time was the essential test of the merits of a herniotomy technic. Transplantation of the cord was no longer practised at the Johns Hopkins Hospital. In his opinion, the satisfactory and efficient suture of the internal oblique muscle to Poupart's ligament, aside from suppuration, was the most important element in success. He believed that Andrews' method probably gave better results than any other known technic. In closing he advised the resection of a certain proportion of the veins of the spermatic cord, which in his opinion greatly favored the permanency of the operation.

Dr. Marcy, of Boston, said that his old teacher, Oliver Wendell Holmes' favorite aphorism on the anatomy of the inguinal canal was that it resembled kindling wood, "the more sticks you split, the more you may." Marcy began to advocate and to do hernia operations thirty-four years ago and from that early date to the present he had been advocating buried absorbable sutures.

Dr. Arthur D. Bevan, of Chicago, described the technic which he has gradually evolved and which he used on the majority of his cases. He said that Andrews' operation was undoubtedly of inestimable value under certain circumstances. He urged that great care should be taken not to injure the tissues any more than could possibly be helped, and to this end he advised that only the portion of the sac which lay directly in the inguinal canal should be excised, such of it as passed into the scrotum doing no harm whatever if left there. In 25 per cent. of his cases, he has employed infiltration anesthesia. In closing he urged that the sutures must all be absorbable.

Surgery of the Trifacial Nerve and Its Ganglia.—Dr. John B. Murphy, of Chicago, divided the subject into five stages: (1) Resections of branches down to the cranial foramina; (2) Division of branches within the cranium, with efforts to occlude the foramina; (3) Removal of the Gasserian ganglion, with intracranial segments of nerve; (4) Extraction of sensory root; (5) Intraneural injections. He said that although he was loath to admit it, he had been forced to the conclusion that the intracranial operation was too menacing to life to allow of its indiscriminate employment if any other technic can be devised to take its place. Of pathology, the author admitted, practically nothing is known, which, however, makes little difference to the patient. What he wishes is to obtain relief from the excruciating pain. He stated that in his opinion regeneration of the nerve after section of its root might be absolute. If such regeneration, he said, were the basis of the return of pain, some operation should be perfected to prevent it. He believed that the ganglia, which are located along the course of the nerve, particularly otic ganglion, played a very important part in pain production. He cited 11 cases in which he had employed osmic acid injections. He detailed their histories in full. This injection, he said, was practised twenty years ago, but the mistake had then been made of introducing it into the tissues and not of necessity into the body of the nerve itself. This is of absolute importance, for if the injection simply passes beneath the sheath of Schwann, no results can be obtained.

Effect of Osmic Acid Injections.—The patient first notices the diminution of pain. This gradually increases until at the end of about three days, anesthesia is complete. He admitted that the permanency of the cures which he reported was not yet assured, but stated it to be his belief that the osmic acid treatment, if properly used, would give a great deal of relief to suffering humanity.

Intracranial Neurectomy for Trigeminal Neuralgia.—Dr. Harry M. Sherman, of San Francisco, reported five operations in four patients. In three of these there was absolute recovery from pain, but one suffered the unfortunate complication of seventh nerve paralysis. In

the last two operations, which had been practised on the same patient, the root of the nerve was cut behind the ganglion. That it was certainly cut was attested to by the fact that there was motor disturbance of a very pronounced character at the moment of section, and further by the fact that section was followed by complete paralysis of the pterygoids. He stated that the technic of Frazier had been carried out, but that it had evidently failed because of the union of the nerve immediately after section. He advocated filling the wound area with normal salt solution just prior to closure, because he believed that this prevented an extensive hemorrhage and was subsequently absorbed. This would naturally limit the formation of scar tissue which develops largely from clots.

Division of the Sensory Root for Tic Douloureux.—Dr. Charles H. Frazier, of Philadelphia, said that he believed his researches had at length demonstrated without doubt the value and success of the technic of resecting the sensory root. He recommended that in those cases where the root could not easily be distinguished, a resection of the posterior portion of the Gasserian ganglion be made. This, in his opinion, would produce the same results as resection of the century root. He considered that the question of regeneration of the root after section was a closed one, because, in his opinion, it was impossible for this to take place. The results of his operations were not capable of positive interpretation as yet, however, because the time in the oldest one was twelve years and eight months, that of the most recent being fourteen months.

Dr. Spiller, of Philadelphia, said that he had invariably found marked degeneration in every part of the nerve and these ganglia when he had studied specimens removed from marked cases of tic douloureux. Inasmuch as there is this general degeneration, it seems self-evident that central is preferable to peripheral section. He advised that a portion of the root should be removed, not to guard against possible reconstruction of the same, but to insure its entire section.

Dr. Robert F. Weir, of New York, said that he had employed osmic acid twenty years ago and was very sorry to say that in his hands it had never proved at all efficacious. Perhaps the secret for this lay in the fact that he had not properly and thoroughly injected it; but he feared that the conviction, which had been forced upon him some years since, that for the relief of a serious facial neuralgia the final court of appeals must be an intracranial operation, was correct. So far as the possibility of nerve regeneration in the case of the posterior root went, he believed that it was quite possible for this phenomenon to take place. In commenting upon Abbe's method of placing gutta percha tissue between the cut segments to prevent their growing together, he recalled two cases in which he had allowed gutta percha tissue to remain in the brain. Each one of these pieces was perforated by newly formed filaments.

Dr. Horsely, of Richmond, said that in his opinion the personal factor was a very important one in determining the regeneration of nerves. He advised the employment of Cushing's technic and suggested that it should be furthered by carotid ligation. He admitted the advantages, particularly those obtained in the eye, which accrued from sensory root severance, but stated that in his opinion complete avulsion of the ganglion would be necessary in a certain number of cases.

Dr. J. H. Cushing, of Baltimore, said that for cases of the genuine facial neuralgia, there was an indirect mortality due to suicide of just about 50 per cent. For this reason, if for no other, a capital operation, which was attended by as low a mortality as the modern intracranial method had recently been shown to have, was not only justifiable, but in his opinion obligatory. This statement, he wished it distinctly understood, applied only to the profound cases of nerve involvement, through the constant pain of which the patient's life is rendered miserable. In the last 16 cases he has lost but one, the horizontal method of reaching the ganglion having reduced the mortality to five per cent.

Dr. John B. Murphy said that he believed he could recognize the real thing and that his injections had been done on genuine cases of facial neuralgia. He said that but little was at present known of the cause of interruption of nerve function. Why, for instance, should section sometimes fail, while paralysis from pressure of short duration may be permanent?

Dr. Sherman, in closing, said that there was no question in his mind that he had succeeded in severing the root of the nerve, for the reasons given. Until he had positive proof to the contrary he should continue to believe that regeneration of the posterior root after simple section as advised by Frazier is not alone possible but probable.

Laminectomy.—Dr. John C. Munro, of Boston, made an earnest plea for simplification and perfection of the technic of laminectomy. He said that most of the laminectomies which the surgeon would be called upon to perform were associated with fracture dislocations. Lloyd's dictum that patients showing evidence of a double transverse lesion should be left alone, he deemed as faulty, obsolete and most dangerous. This position was readily explained by the fact that no man can be positive in his interpretation of symptoms until the time of operation. He spoke of the pathology of suppression of function in nerves, stating that we know enough to be certain that it was not a mere degeneration. He advised operating even in chronic cases for the reason that in two such he had had most gratifying results. Truly these were the product of a long series of discouraging failures, but they were enough to justify the possibility.

Dr. Lund, of Boston, in opening the discussion of this paper, said that much of the success which was to be hoped for in the future of these operations could be attributed to the painstaking and continuous efforts of Dr. Munro to perfect the technic and to improve the impliments used in laminectomy. He said the discouraging nature of the work was well calculated to turn the activities of investigators and operators into other channels. He emphasized the danger of attempting to make a positive diagnosis from symptoms alone.

Dr. Cushing said that hematomyelia was practically unrecognizable from bone pressure occurring in the spinal cord.

The Treatment of Cold Abscesses and Sinuses in Tuberculous Disease of Bone.—Dr. V. P. Gibney, of New York, first detailed the effects of modern life and environment on the development of this class of lesions. He said that in the opinion of many orthopedic surgeons, the ground was still held that it was wise under any conditions to allow of no interference, but to hope that under protection and extension they would absorb. That in a great many cases this takes place cannot be doubted. But the fact remains that this treatment is by no means ideal. He then drew attention to the existence of the opposite class of operators who treat these abscesses on the principle that pus should be evacuated wherever found. A middle ground was to be distinguished as represented by the class of surgeons who advise aspiration of these cavities with or without the injection of antiseptics. Experience of a great many years had taught him that the best results were to be obtained by early recognition of the abscess, its immediate opening and,

in the event of the pus being sterile, its complete closure. Its technic is, however, hardly ever available. If on aspiration there is found to be a mixed infection, drainage might much better be established by the surgeon than by nature. This mixed infection is a most direful calamity.

Old Unreduced Dislocations.—Dr. DeForest Willard, of Philadelphia, said that old chronic dislocations demand much greater gentleness of treatment than the recent fall. The time would come, he hoped, when one should be able to say that the treatment of this condition had ceased to be of importance, because the lesion itself had ceased to exist. He described Allis' work in considerable detail, and concluded that in operating upon dislocations, it was essential to cut all the soft parts, which in any way interfered with the proper reduction. He would also advise an avoidance of operation in cases upon whom a number of previous operations had been made on the same site, because of the increased danger from depressions of the tissues of sepsis.

Dr. Arthur D. Bevan, of Chicago, commented on the very great value of the X-rays in diagnosing dislocations. In injuries of the more inaccessible joints, they rendered less to be dreaded the frequent complication of fracture. In operating upon the elbow, he advised the careful saving of the triceps tendon. In old chronic dislocations of the elbow, he had found the best results to arise from a resection of the head of the bone.

Dr. Joseph A. Blake, of New York, also commented favorably upon the value of the X-ray. He said that, except in very rare cases, mechanical methods of reduction were valueless and dangerous. For the shoulder, he advised the open incision, which should be placed as far forward as possible to avoid the tissue of the deltoid. He utilizes a lateral incision in the elbow-joints and stated that it had been his experience that the results of operative intervention in this region were far better than those obtained at the shoulder. This he accounted for by the fact that the shoulder girdle was freely movable. This interfered with the application of any considerable degree of force in passive movements.

Conservative Perineal Prostatectomy.—Dr. H. H. Young, of Baltimore, cited the history of the development of the operative work on the prostate as it had occurred in his hands at the Johns Hopkins Hospital. First he had done the suprapubic operation, then discouraged with this, he had turned to the Bottini technic, and finally he had become convinced that the operation of choice was perineal prostatectomy. In his series of fifty cases, he had had no deaths. He described the technic of his operation and illustrated his remarks with a beautiful series of diagrams. He considered a transverse incision through the skin to be essential. Further he believed that every effort should be made to save ejaculatory ducts and the urethra.

Prostatic Obstruction.—Dr. Parker Syms, of New York, said that the modern methods of diagnosis were, or should be exceedingly simple, except under extraordinary conditions in which the cystoscope should be employed. He reiterated his well known points of objection to the suprapubic route and to the Bottini, believing that both would soon fall into well deserved oblivion. So far as catheter life was concerned, he expressed his belief that the period of its enjoyment, which has been stated to be four years, was altogether too high. It should probably be divided by two or a greater number. He utilizes a simple median incision, opens the urethra, passes in his well known double retractor into the bladder and shells the prostate out. There is practically no hemorrhage, and the length of time needed for the technic is about seven minutes. He stated that he had recently come to the conclusion that there was no sense in keeping these patients in bed, inasmuch as the operation might justly be considered one belonging to minor surgery. He therefore allows his patients to get up in from twenty-four to forty-eight hours. In his last 34 cases he has had two deaths.

Prostatectomy by the Perineal Route.—Dr. George Goodfellow, of San Francisco, spoke of the horrors of catheter life. He said that no instrumentation of the bladder should be practised if it could be avoided. His operation is practically identical with that of Syms with one exception, that he uses no retractor. The question of the pathology of the middle lobe was still moot. Physiologically this is probably absent, but pathologically it is present in most cases and usually springs from the commissure. In giving his technic, he agreed with Syms and previous speakers that it should be as simple as possible; no bladder washing, and as little dissection of the perineum as possible. He utilizes a low, old-fashioned lithotomy staff that has an extensive curve quite different from the modern, straight instrument. The position of the patient is of the utmost importance, the knees being flexed so as to reach into the armpits. Sixty-seven years was the average age of his patients, and in 78 operations he has had but two deaths.

Is It Wise to Try to Make Any One Operative Method Apply to All Prostatectomies?—Dr. Eugene Fuller, of New York, discussed the subject as it was presented to him from the results of 300 operations for removal of the prostate. He cited the indications for and against the suprapubic and the perineal operation.

Dr. Martin B. Tinker, of Ithaca, spoke of the great importance of using massive infiltration anesthesia for these cases. He uses eucaine with adrenalin, one to one hundred thousand. The entire perineum is supplied by the pudic and long pudendal nerve. These course around the inner aspect of the tuberosity of the ischium and in any subject, but particularly in the rather emaciated cases which usually come to operation, one can strike the nerves and infiltrate them without the least trouble. On account of the fact that the morality of the operation is largely caused by general anesthesia and partly too because of the objection which most patients entertain to this, it is very desirable that local anesthesia be employed.

Dr. Syms, in closing, said that the highest tribute which could be possibly paid to the perineal method, was to be found in a simple addition of the cases presented at the meeting and an estimation of their mortality. One hundred and sixty-three cases had been cited and of these four had died, the percentage being thus reduced to the nominal sum of $4^{4}/_{10}$.

Kidney Stone, Diagnosis and Treatment.—Dr. Arthur D. Bevan, of Chicago, mentioned briefly the more important etiological factors and gave statistics as to frequency, sex, age and geographical locality. He regards a mild bacillus coli infection of the kidney as probably the most common cause of stone. The typical picture as presented in text books is rarely followed. He cited the conditions from which renal stone has to be differentiated and concluded by emphasizing the importance of the X-ray. Cryoscopic examination of the blood has in his hands proved most valuable in determining the condition of the renal epithelium. The treatment he divided into three groups. First, expectant. This might be employed where symptoms were not severe and should in his opinion be combined with the giving of glycerin internally and the introduction into the ureters of vaselin oil. Calculus anuria of course necessitates immediate operation, and as it is inconceivable that stones should lodge simultaneously in each ureter, it proves that one ureter is not infrequently occluded without giving rise to more than passing

symptoms. There is but a three per cent. mortality in non-suppurating cases. He would not advise the stripping of the capsule. He gave the technic of his method of operation, stating that he used a sweeping incision similar to that advised by König. The kidney should be brought upon the surface before incising it. After that is done, there is no need of considering any lives of diminished vascularity, because the hemorrhage can always be easily controlled. In stone of the pelvis, he advises a free incision of this organ. In conclusion, he wished to emphasize the importance of the X-ray in diagnosis and that early incision and removal should be practised and, in the absence of suppuration or of obstruction of the ureter, should be followed by no drainage.

Dr. C. L. Leonard, of New York, read a statistical review illustrative of the value of the X-ray as a means of diagnosing renal stone.

Dr. Joseph A. Blake spoke of the great value of Dr. Bevan's paper and expressed his wish that it might be more generally known that with suitable apparatus admirable X-ray pictures could be made of these stones in from six to eight seconds. He discussed the frequency with which unilateral calculi of the ureter often remain latent. This, he said, was an additional cause for utilizing the X-ray, because such calculi are extremely dangerous. He then discussed the question of primary or secondary nephrectomy and stated that his experience had led him to the conclusion that the kidney had better be removed at the first operation. He endorsed Dr. Bevan's attitude that in the absence of compromising conditions the wound after nephrotomy should be closed without drainage.

FOURTH DAY—JUNE 10TH.

Dr. A. J. McCosh, of New York, was elected Chairman of the section; Dr. F. W. McRae, of Atlanta, Ga., secretary.

Treatment of Fractures of the Patella by Lateral Suture.—Dr. Joseph A. Blake, of New York, detailed the anatomy and pathology of the involved parts in considerable detail. He drew particular attention to the so-called lateral patella ligaments which are instrumental in fastening the vastus internus and externus directly to the tibia. In fractures by direct violence alone they are not torn, and suffice to keep the fragments in apposition. He said that a knowledge of this anatomical fact is necessary for the establishment of a rational mode of treatment. The indications for operation are determined exclusively by the degree of tearing off the lateral ligaments. These are apt to remain intact in fractures caused by direct violence, whereas they are almost invariably torn when injury results from muscular violence. The latter cases are better treated by operation while the former yield good results by mechanical treatment only. In discussing the technic, he said that there were two points which he wished to emphasize. The first was a general one and was not original with him, although enough attention had not been given to it. It was simply to the effect that a suture of the lateral ligaments alone was quite sufficient. The second, a point which he believed had not been commented on before, the necessity of placing the stitches as close to the bone fragments as possible. This is absolutely essential in securing their coaptation so necessary to bony union. He advised a transverse incision and stated that he always made use of silkworm-gut sutures without drainage. The simplicity, ease and rapidity of this method are self-evident. An important factor not to be overlooked consists in the ability of the operator using it to avoid traumatism of the tissues such as is of necessity inflicted in any bone drilling operation. He advised massage and kindred treatments, fifteen to twenty days after operation, and believed that the time of election for operation was from the forty-eighth hour to the fifth day.

Twenty-two Consecutive Successes.—This had been the record since the adoption of this technic. Two patients had refractured their patellæ, both of whom were reoperated. There was at the second operation no evidence of a fibrous union, and great force had evidently been exerted in causing the fractures.

Dr. Gibbon, of Philadelphia, said that he could simply endorse Dr. Blake's paper, but he wished to add that age up to sixty was not a contraindication, but that alcoholism distinctly was.

Dr. Vaughn, of the Marine Hospital Service, said that although he had been able to obtain free access to the joint by a long longitudinal incision, the transverse section recommended by Blake undoubtedly gave more room. He had recently been using silver wire.

Dr. Binney, of Kansas City, said that the bugbear of bony union in these cases being essential, was at length destroyed. The real meat in the cocoanut lay in deciding first upon early operation, and second upon a thorough suturing of the lateral ligament. They do the work.

Dr. Rodman, of Philadelphia, said that Blake's observations were based on thorough anatomical and surgical principles. He was surprised that the operation which had originated in Great Britain was not so popular there as here. He affirmed that no surgeon should operate on the knee-joint without realizing and confessing to his patients that there was in its execution an element of danger both to limb and to life.

Dr. Eisendrath, of Chicago, said that some sixteen months ago he had hit upon Blake's operation through having to suture the soft parts in default of his bone drill. His technic was identical with Blake's with the single exception that he favored the insertion of two periosteal stitches where this membrane crossed the anterior surface of the patella to prevent its falling into the fracture.

Dr. Bullard said that the nomenclature of the subject should be changed from fractured patella to ruptured ligament. He asked why Dr. Blake operated so early when many other surgeons advised waiting ten or twelve days.

Dr. Charles A. Powers, of Denver, said that eight or nine years ago he had been appointed to report on the matter of operation for fractured patellæ. He had approached the subject as a skeptic, but had soon become converted. He agreed in all details with Dr. Blake.

Dr. Blake, in closing, said that long chromicized gut was worse than silver wire. In answer to Dr. Bullard, he stated that he had formerly waited for a week or ten days, but had come to the conclusion that a good deal of effort at repair had by that time been made. This necessitated the cutting of more tissue than in the case of an earlier operation.

Surgical Treatment in Certain Cases of Arthritis Deformans.—Dr. Martin B. Tinker, of Ithaca, said that before any useful surgical treatment could be devised, careful study must be made of the etiology and pathology of the condition. Of the former we know but little. Many writers have confused it with rheumatism, but there is no question that it is an entity separate and apart from this. Others have ascribed to it a nervous origin. While nervous strain and general bodily fatigue may be factors, still it does not seem possible to believe that they are the only agents. Infection by a specific organism appeals more earnestly to the thoughtful observer. And all surgical treatment should probably be based on the supposition that infec-

tion is responsible for the disease. The pathology is equally important. As is well known, it attacks the larger joints, but may after a period of twenty years or more have invaded almost every joint in the body. Primarily the disease is entirely extra-articular, but sooner or later changes, which give rise to the well-known mushroom deformity, take place in the ends of the bone. In diagnosing the condition, it should be remembered that it occasionally is present in but one large joint and may therefore not unreadily be mistaken for tuberculosis.

Value of Tuberculin.—He had injected 400 patients with tuberculin. Many of these had had arthritis deformans and in not a single instance had he obtained any reaction. As regards the extent of disability, he said there were at the institution at which he was attending surgeon no less than one dozen men and women who had been rendered so utterly helpless as to be unable to rise from their chairs or to be manipulated in any way.

Surgical Treatment.—While the various springs are able to give palliative treatment and this for the time stays the course of the disease, there is no doubt that a certain proportion of them progress until they are justly within the realm of surgical help. The simpler operation of arthrotomy should be practised to the absolute exclusion of brisement forcé, because by the pathology, it is known that there are no adhesions to break up, but that the joint is locked by small osteophytes.

Six per cent. of a series of 200 cases which he had recently seen in consultation were deemed fit subjects for operation, and in them arthrotomy, or in one or two cases arthrectomy, had given almost brilliant results. He believed the latter operation to be indicative in the presence of absolute fixation or for the relief of extreme pain.

Dr. Vaughn agreed with Dr. Tinker that probably arthritis deformans is of infectious origin. He said that the fever, which could always be recognized, if the cases were carefully watched, at their very beginning, suggested this. He had operated on the same woman three times by brisement and had succeeded in getting a very good result.

Dr. Sherman said that the value of the removal of osteophytes and exostoses had in the past been entirely unappreciated. He asked whether any evil consequences might be feared as the result of opening a diseased joint?

Dr. Tinker replied that in the quiescent cases upon which he had operated, he had experienced no more difficulty than is to be looked forward to in a normal joint. He described his method of immobilizing the shoulder at right angles to the trunk and the restitution of function by gradual and continued passive motion.

Impacted Fractures of the Neck of the Femur.—Dr. Lemoyne Wills, of Los Angeles, presented the radiographs of two interesting cases, the histories of which he gave in detail. These radiographs demonstrated very clearly the necessities for radical surgical interference if cure was to be effected.

Fat Embolism of Lung Following Fractures.—Dr. F. G. Connell, of Leadville, Col., stated that this important subject had been thoroughly thrashed out on the continent, but had for some inexplicable reason been treated with neglect both here and in Great Britain. He said that the discovery of fat globules in the sputum or urine of a suspected case would establish the diagnosis. The prognosis is grave. Fat emboli after passing through the lungs may be arrested in other organs, notably the brain and the kidney. This accident is most common after a fracture of the long bone.

SECTION OF OBSTETRICS AND DISEASES OF WOMEN.

THIRD DAY—JUNE 9TH.

(Continued from Page 1150.)

The Surgical Treatment of Bilocular Uterus and Bifid Vagina.—Dr. H. W. Longyear, of Detroit, stated that as this malformation was easy of correction it should, in his opinion, be operated upon as early as discovered, so as to avoid the accidents of pregnancy which are liable to complicate this anomaly of development. It was essential, however, that care be exercised in making a differential diagnosis between uterus duplex and uterus bicornis, for the only cases suitable for the author's operation were those in which a single uterus was divided by a medium septum extending to the fundus. The treatment consisted in grasping the septum between clamps, cutting along the latter with scissors, and then applying the Pacquelin cautery to the cut edges. The resulting cavity is then packed with gauze. Two cases were reported in which this procedure had been applied with success. One of these presented in addition an anomalous development of the left side of the body. In both there was also marked dysmenorrhea, which was apparently relieved by the operation, although in one it returned later on and necessitated oophorectomy.

Dr. Dunning, of Indianapolis, said that he had seen two cases of this kind, in which the septum was torn through during labor without any marked bleeding or other bad results. Both of his cases had done well and he doubted whether operative interference was necessary.

Dr. J. T. Johnson, of Washington, D. C., reported a case where a miscarriage for which curettage had been done, was followed by the birth of another fetus five months later. It was then determined that there was present a divided uterus, and if an operation had been done in this instance, the unpleasant consequences would have been avoided.

Dr. J. H. Carstens, of Detroit, also reported two patients. One of these had had several miscarriages, but after the septum was removed had a full term pregnancy. He advised the application of carbolic acid to the interior of the uterus after operation in order to prevent subsequent adhesions.

A Plea for More Thorough Examination of Doubtful Specimens of Ectopic Pregnancy.—Dr. J. W. Bovée, of Washington, D. C., claimed that, as many cases of ovarian and tubal hemorrhage had a symptomatology similar to that of disturbed tubal or tuboovarian pregnancy, particularly tubal abortion, the specimens removed from such cases were not carefully examined but were merely considered pregnancies. He suggested that for the sake of reliable statistics, if for nothing more, careful histological examinations should be made. He reported ten cases where the clinical history indicated a tubal pregnancy, but which on microscopical examination were found to be various other conditions, two of them in fact were malignant ovarian tumors.

Some Cases of Ectopic Gestation with Atypical Symptoms.—Dr. W. B. Dorsett, of St. Louis, found that occasional cases came under the observation of the surgeon that did not present the usual symptoms. Among others, right sided tubal pregnancies were sometimes mistaken for appendicular inflammations. Knowledge of the symptomatology was by no means complete. In some of the cases which he had operated, no diagnosis had been made, although indications were present which called for surgical interference. The history of the case should be subordinated to the general condition of the patient.

Dr. Carstens stated that he had operated on a case which he thought might be appendicitis. There was no temperature rise nor increase in the pulse rate. It turned out to be a right-sided ectopic. He believed that we should operate first and decide the pathological condition afterward.

Dr. Massey, of Philadelphia, entered a plea for more conservative measures in treating this condition, especially in those cases where the mass was already being absorbed by natural means. Where the diagnosis could be made of a tubal gestation, it was feasible to kill the fetus by the application of the electric current.

Dr. Goldspohn, of Chicago, considered that the only difficulty in diagnosis was in the cases seen before rupture had taken place. He also called attention to the fact that evidences of gestation were sometimes only found after a microscopical examination of the small cavity present in the interior of the blood clot. He did not believe that the peritoneum had any digestive function in doing away with the mass.

Dr. Dudley, of New York, believed that it was not necessary to remove the entire tube unless septic conditions were present. The fetus could be evacuated and the adnexa dropped back into the pelvis, after occlusions or other deformities had been corrected.

Others who participated in the discussion were Drs. Lawrence, Humiston, Stone, Brickner. The latter described the method in vogue at the Mount Sinai Hospital, in New York, in which a most careful menstrual history graphically worked out on a special chart, generally aided in making a diagnosis.

The Influence of Ovarian Implantation on Menstruation in Women.—Dr. A. P. Dudley, of New York, reported on seven cases in which he had done such conservative operations, all of which subsequently menstruated and were free from the physical changes or nervous manifestations attendant upon the production of the menopause. The last case he reported in detail. In this patient both tubes and one ovary had been previously removed. For the relief of her condition, hysterectomy was advised, but consent to do same was refused. It was then determined to free the cystic left ovary and implant it in the uterus. This was accordingly done, the organ being placed in a cavity prepared for it in the split horn of the uterus. Three months after the operation, the woman menstruated, and continued to do so at intervals of about three months. Eighteen months later a severe metrorrhagia began, for the relief of which it was finally necessary to do a total hysterectomy. The hemorrhage the writer was unable to account for. Examination of the uterus, which was presented at the meeting, showed that the uterine and ovarian tissue had become merged, with Graafian follicles well marked. In this as in the other cases, primary union had resulted between the uterus and the ovarian graft. Although he doubted the extended possibilities of the method, he thought that there was a field for its application and submitted the following questions for discussion: (1) Was the plan justifiable as a surgical procedure? (2) Was it worth the effort from a physiological standpoint? (3) Would the implanted ovary eventually resemble the fibroid in its action? (4) Was it possible that pregnancy might ultimately take place? (5) Providing it did, what was the prospect for normal delivery?

A Plea for Conservative Operations on the Ovaries, from a Neurotic Standpoint.—Dr. J. W. Cokenower, of Des Moines, Iowa, called attention to the necessity of making a better diagnosis in those cases which are referred to the gynecologist for a complex of symptoms, the cause of which is ascribed to ovarion lesions. It should be most carefully determined whether such symptoms were really due to the ovary. Intestinal intoxications could produce abnormal conditions of which pelvic disease might be the result rather than the cause. Neurotic cases were uncommon in which the condition was wholly dependent on diseased sexual organs. Negative results for ovarian operations undertaken for the relief of such troubles were quite common, and in making a decision it was best to hold an intermediate position. The time for concluding medical and beginning surgical treatment should be governed by the consensus of opinion of many observers, rather than the statistical reports of a few. He reported four cases to illlustrate his position, in which operation was followed by disappointing results.

Dr. Morris, of New York, told of his experiments with homoplastic and heteroplastic transplantations of the ovary in rabbits. Only the former was followed by successful results. He thought it well to save the ovary in pyosalpinx, and found that while the remainder of the operation was being carried out, the ovary could be kept in hot saline solution for a considerable length of time. In reference to Dr. Cokenower's paper, he thought also that it was most essential to differentiate carefully between fundamental psychoses and pure neuroses.

Dr. Goldspohn, of Chicago, said in discussing the second paper, that the problem of what to do in these cases could only be solved by making a better diagnosis between psychical and actual pain. In all patients it was well to examine all other parts of the body before the pelvis.

Dr. Humiston, of Cleveland, said that frequently the pelvic organs were normal, while others were at fault and probably accounted for the neurosis. Personally he only got good results from the radical ovarian operations.

Dr. Bacon, of Chicago, thought that the site of implantation was unfavorable, as the ovary might be washed away by the uterine discharges. It seemed to him that the chief object was to secure the benefits of the internal ovarian secretion rather the possibilities of pregnancy.

Dr. Massey, of Philadelphia, claimed that it was only necessary to remove the inflammation rather than the organ itself, and believed that this could be done most readily by kataphoresis with the mercuric ions.

Dr. Carstens, of Detroit, thought that the method might be of value in occasional cases in young women, but in older women it was necessary to extirpate the entire organ if the symptoms were bad.

Dr. Craig, of Boston, referred to the observation made by him that the normal ovary becomes scarred during middle life from the cicatrization of the continuously rupturing Graafian follicles. Many so-called cystic ovaries without clinical symptoms, are merely made up of such scarified ovaries with enlarged Graafian follicles. He considered that as it was necessary to keep up the internal ovarian secretion, Dudley's operation should prove of value.

Dr. Chandler, of Philadelphia, thought that the principal advantage to be gained from the operation lay in the fact that the menopause would be postponed. The objections were possible sepsis, death of the ovary, malignancy, and the action on the fetus.

A Series of Mistaken Gynecological Diagnoses.—Dr. T. S. Cullen, of Baltimore, presented five patients, in the first of which there were the classical signs of large multilocular ovarion cyst, but which on operation was found to be a pedunculated uterine fibroid, partially parasitic. The omentum was greatly atrophied. The association of this condition with ascites was referred to as very rare and unusual. In the second patient a diag-

nosis of globular uterus was made with two subperitoneal nodules. On section this was found to be an advanced adenocarcinoma of the corpus, although from the history it was not thought necessary to make a microscopical examination of the uterine scrapings. In the third patient there projected from the right side of the uterus a globular mass and from the vicinity of the right cornu a subperitoneal nodule. An intraligamentary and subperitoneal myomata were diagnosed. At operation the nodule proved to be a tense and kinked hydrosalpinx, and the intraligamentary growth an adenocarcinoma of the ovary, invading the bladder wall and the intestine. The fourth patient was a woman of sixty years, who had recently had temperatures from 100° to 103° F. There was marked pain in the pelvis and some discomfort during defecation. In the vaginal vault and apparently attached to the posterior surface of the uterus was a slightly irregular but globular mass. The diagnosis was either subperitoneal myomata with adhesions fixing it to the pelvic floor or a pelvic abscess. Operation disclosed an irregular globular tumor involving the sigmoid flexure. This had dropped over to the right side and become adherent to the pelvic floor. Between the growth and the floor of the pelvis was a small abscess due to rupture of a diverticulum from the intestine, of which there were a number filled with fecal concretions. In the fifth patient there had been present an adenocarcinoma of the kidney which had remained without recurrence for sixteen months after operation. Then a rapidly growing tumor of the liver was observed which involved the entire lower half. As determined later on, however, it was shown not to be a metastatic growth.

Injury to the Rectum in the Gynecologic Examinations.—Dr. H. A. Kelly, of Baltimore, in calling attention to the importance of the rectum as an avenue of investigation, referred to the dangers attending an examination roughly conducted. It was possible not only to rupture cystic structures and to spread their contents all over the abdomen, but also to injure the rectum itself. He saw four cases where the examining finger had been pushed through the rectum, and in one instance had entered a large ovarian cyst. It was not always the examiner's fault, and some of the blame might be placed on the soft condition of the tissues. In making rectal examinations it was always well to recognize but not invaginate the ampullæ, and to get the finger well beyond what he described as the third sphincter. The arm should always be relaxed and the wrist loosely held. The bowel when distended with air facilitated the examination and if the patient were in the dorsal position, the air escaped much more slowly than in the Syms position. Repair may be done through the posterior cul-de-sac, or by abdominal section.

Drs. Cullen, Lawrence, Shoemaker, Wetherill, and Noble all reported instances of rectal injury sustained in this manner.

Some Further Observations on the Use of the Stem Pessary for Scanty and Painful Menstruation.—Dr. J. H. Carstens, of Detroit, said that he had relieved many cases by this method. There were two classes of patients, young girls who had always been troubled by their menstrual flow and who had been subjected to continuous overstudy, and others, where the dysmenorrhea came on later, after a normal menstruation had been present for some years. These were unmarried women in whom the uterus and particularly the cervix were undergoing premature atrophy. The condition he claimed was due to the lack of development of the uterine muscle, and the only way to develop it was by exercise. This he believed could be secured by the introduction of a foreign body which the organ constantly endeavors to expel. The stem pessary was the most suitable means. He reported several cases. In one the stem had been in place for two years with relief of symptoms, but on removal the condition gradually returned and the stem had to be reintroduced. One case would not tolerate the stem and promptly expelled it. One case of sterility of five years had now become pregnant after the use of the stem for a few months.

The Propriety, Indications and Methods for the Termination of Pregnancy.—Dr. F. A. Higgins, of Boston, presented this paper in which he stated that there were evidences of broadening in the indications for the termination of pregnancy. The wisdom of this could not be questioned and the only after thought would be the possibility that it might lead to ill advised abortion. This he doubted. He then discussed the various acute and chronic diseases which might determine abortion. Acute diseases are not usually an indication unless labor intervenes; if so, the latter should be expedited. In treating of the various methods he thought that if bougies were used, the employment of two was better than one. He recommended the Voorhees bag and the colpeurynter however. Manual dilatation might cause rupture, while instruments were safer and under control. The dilatation depended upon the amount of stretching which the cervix would endure. The author's new form of dilator was presented and compared with the Bossi instrument, an example of which was also at hand.

Dr. Hall, of Kansas City, thought it was more honorable to suggest methods of preventing pregnancy in doubtful cases rather than to devise methods of abortion. The effect of such a paper might be bad on the public mind. But where indicated, he believed the use of a suitable instrument preferable to the finger.

Dr. Bacon, of Chicago, believed that the social condition of the patient had much to do in deciding the question. In twins and hydramnion, rupture of the membranes was indicated and he preferred that the dilating bag should be within the egg sac. Vaginal Cæsarean section was to be preferred to the use of instrumental dilatation.

Adherent Uterus as a Complication of Labor.—Dr. J. C. Applegate, of Philadelphia, based his paper on the question as to what circumstances should permit the pregnant woman with an adherent uterus to go to term. In his experiences with the various methods of operating he found that the round ligament methods had no effect on the pregnancy, but that labor destroyed the results of previous operation. The Montgomery seemed to be the most suitable. Peritoneal suspension was dangerous from the possibility of rupture of the uterus. Ventral fixation was unjustifiable before the menopause except in rare circumstances, and pregnancy to full term depends entirely on the mobility of the uterus. If the cervix did not enlarge and rise posteriorly, labor should be induced. Cæsarean section is the safest procedure in these cases. The most favorable method in his experience had been hysteropexy, with the sutures introduced in front of the origin of the tubes instead of to the fundus.

Drs. Craig, Shoemaker, Dunning, Dorsett, and Fry discussed this paper and reported cases of labor after operation.

Membranous Endometritis.—Dr. F. F. Lawrence, of Columbus, called attention to the unsatisfactory result obtained with local treatment in this condition. In a series of 42 cases examined by him, he noted that tubal or ovarions disease was present in a large proportion of cases, a considerable number of which had followed

the exanthemata. He believed that the disease was due to a secondary trophic change dependent upon an intercurrent pelvic disease. Where the condition of the ovaries and tubes was not due to an immediate infection, he believed that the endometritis could be cured by excision of the diseased structures without treating the uterus itself. He presented several successful cases and recommended that in all cases of membranous endometritis, a careful pelvic examination be made and that the method suggested be given a further trial.

Dr. Fischer, of Philadelphia, expressed surprise at the large number of cases seen by the author, but considered that those cases in which shreds only were passed should not be included in the classification. Drs. Dunning and Bonifield had also seen but very few cases of this condition.

Officers of the Section for the year 1904-1905.—Chairman, Dr. C. L. Bonifield, of Cincinnati; Vice-Chairman, Dr. F. F. Lawrence, of Columbus, Ohio; Secretary, Dr. W. P. Manton, of Detroit, Mich.; Delegate, Dr. J. W. Bovée, of Washington.

SECTION ON PEDIATRICS.

SECOND DAY—JUNE 8TH.

(Continued from Page 1150.)

How to Produce the Best Milk for Artificial Infant Feeding.—In this paper Dr. Edward F. Brush, of Mount Vernon, N. Y., called attention to the importance of cleanliness in both the surroundings and in the food provided for the cow which is to produce milk for infant feeding, and emphasized the fact that mental and physical conditions greatly affect the quality of the milk produced, and said that the mixed milk of a herd is greatly superior to milk from one cow which, he said, is always dangerous, that thoroughbreds and large producing varieties generally are usually the most liable to be affected with tuberculosis. Many cows, he said, might be safe enough for the production of butter and cheese, but at the same time might not be good producers of milk for the infant. Dr. Brush related personal experiences showing that a single cow may at times be apparently well and yet may cause the death of infants fed upon her milk. He did not believe in modifying milk other than by the addition of sterile water and, if necessary, cream. Milk, he said, should be reduced in temperature, soon after milking, to 50° F., and kept there till used, but of greatest importance was the gentle treatment of all cows, for experience had taught him that an irritated cow will produce milk which will cause illness in the baby fed upon it.

The Initial Contamination of Dairy Milk.—In discussing this subject Dr. Richard Cole Newton, of Montclair, N. J., said that one of the most encouraging signs of the times is the interest and knowledge among the laity concerning all matters pertaining to hygienic living and particularly of dairy methods. It is popularly believed that milk is aseptic while in the cow's udder, but this had been disproved by Kahn, who after most careful and elaborate attention to asepsis and antisepsis had found that cow's milk in the udder contained 242 bacteria to the cubic centimeter. Cow's milk, he said, is most frequently contaminated with dung which dissolves in the milk but carries enormous numbers of bacteria with it into the milk and that experimentation had shown that one-third of a grain carried with it seven million bacteria. Pure milk, he said, should be odorless and should have so slight a taste that most people would pronounce it tasteless and that the microscope would not detect all the contamination of milk nor would the Pasteur filter remove it. Many methods had been tried in the effort to remove the initial contamination, with greater or less success and he described various milk pails which had been devised to prevent the contamination which occurs at the time of milking, at which time the greatest amount of dirt enters the milk and that the bacteria which enter the milk afterward multiply more rapidly than those which are present before withdrawal from the udder and, therefore, if these secondary bacteria are kept out the milk will keep in good condition longer than otherwise. The method recommended for prevention of initial contamination was to cover the milk pail with sterilized cheese cloth and to draw the milk directly from the udder through this into the pail which had, of course, been previously boiled, then bottled and reduced at once to a temperature below 50° F. Such milk should not contain over 5,500 germs per cubic centimeter. This method was available to any farmer, and he should be encouraged to adopt it.

Dr. J. P. C. Griffith, of Philadelphia, said that simplicity in the care of milk is of paramount importance; that Pasteurization and sterilization are useful but only when other means of obtaining good milk were not possible. He said that the added cost of milk properly obtained was an objection, but that it was worth the added cost. The Philadelphia Pediatric Society, he said, granted certificates to dairies which kept the number of bacteria per cubic centimeter below ten thousand.

Dr. F. L. Smith, of Bridgeport, Conn., said that milk is very frequently rendered poor by improper food being given to the cows and that the Jersey cow is most susceptible to poor food. He mentioned as an example of this a case in which a herd of Jerseys had fed upon partially decayed apples, after which five of them had become drunk, and said that surely milk from such a herd was not proper food for infants. It was a well-known fact, he said, that milk frequently tasted of the food which had been eaten by the cow and that the farmer should be educated along the lines suggested by this idea.

Dr. L. C. Ager, of Brooklyn, said that every time milk is handled it is endangered and that in recognition of this the Brooklyn authorities had recently instituted a change whereby all milk is bottled at the farm and not at the creamery, and that this had resulted in the sale of better milk. Difficulty, he said, had been found in compelling the dealers to conform to the requirements of the Brooklyn authorities as they had been found placing certification labels on poor grades of milk.

Dr. Southworth, of New York, said that he did not agree with Dr. Brush in that he preferred milk sugar to cane sugar when it became necessary to add sugar to milk. He said also that the time has passed when we thought we could make cow's milk equivalent to mother's milk and that the importance of the situation would be more nearly realized if we should call the child's condition a pathological one when it is removed from the mother's breast. He said that he believed in Pasteurization and sterilization when we have milk that has not been properly secured or is somewhat old, although he recognized the disadvantages of milk so treated.

Dr. Morse, of Baltimore, said that efforts to render milk free from initial contamination were important, but that proper modification of milk should not be neglected and said that he, too, preferred milk sugar to cane sugar for addition to milk in its modification. He asked Dr. Brush what should be the cost of good milk.

Dr. Hamill, of Philadelphia, said that investigation

of the actual cost of producing good milk in Philadelphia had shown that seven and three-quarters cents per quart was the minimum cost per quart. He said that a milk pail similar to the one advocated by Dr. Newton was in use at the dairies near Philadelphia.

Dr. Gilbert, of Louisville, said that he had had very good results from sending sick children and infants to places where they could get milk while it was still warm with the animal heat of the cow.

Dr. Brush, in closing, said that he wished to emphasize the importance of obtaining milk from cows which had been gently treated. This, he said, was of even more importance than the exclusion of contaminating materials. He said that he preferred cane sugar in treating milk because experimentation had proved to him that milk sugar is practically inert, and because the commercial milk sugar is not pure. The cost of producing milk, he said, was about six or seven cents per quart and that the best milk is worth on the market from fifteen to twenty cents per quart. He further said that raw milk had always proved preferable to modified milk in his experience and cited cases to support this statement.

Dr. Newton said that, contrary to popular belief, milk which has undergone lactic acid fermentation was not necessarily bad and that "sweet" milk was not always good. The lactic acid bacteria tend to inhibit the action of other bacteria and may therefore be beneficial. In regard to sterilization, he said that when he had fed mice on sterilized milk exclusively they had died at the end of twenty-five days. He endorsed Dr. Brush's advocation of the gentle treatment of cows as productive of a better quality of milk.

Chronic Constipation in Infants.—Dr. J. Ross Snyder, of Birmingham, Ala., defined constipation as "any condition in which products of food are retained in the bowel after they have lost all nutritive power" and then went carefully over the conditions which tend to produce this result in the infant. The abdomen of the infant is such that it conduces to the accumulation of waste products in the bowel, since the lumen of the intestine is proportionately smaller than that of the adult and also longer, while the pelvis is smaller. This, he said, causes a distention of the abdominal wall and unless food such as the infantile digestive organs can care for is given to the child constipation follows; that some have thought that constipation in the mother produces an inherited tendency to constipation in the child, but this he said is not true; that although the child of a constipated mother might be more liable to constipation it was due to altered milk secretion due to improper food taken by the mother and later in the child's life to the subjection of the child to the same improper alimentation and lack of proper conditions from which the mother suffered. Tight diapers and other causes of pressure upon the abdomen are factors also in the production of constipation as are irregular and overfeeding, lack of bulk or the proper amount of fats, but the most constant cause is improper diet and in treating the condition this should always be borne in mind. The alleviation of constipation by drugs, while necessary, should not be the object of treatment as the cause should be eradicated and this could almost always be done by attention to the child's diet. Suppositories, injections and similar measures are to be discountenanced and massage of the abdomen should never be used in the treatment of constipation of infants.

Dr. I. A. Abt, of Chicago, said that the prevalent idea of fats in the production of constipation is erroneous and that occasionally there exists a tonic spasm of the sphincter and muscle which may be overcome by the introduction of a clinical thermometer into the anus.

Refractive Errors in Children.—Dr. J. H. Claiborne, of New York, reviewed the forms of these conditions which produce eye-strain, noting four general conditions, the ametropic eye, the hypermetropic eye, the myopic eye and the astigmatic eye. He condemned the custom of putting too much work upon the growing child and particularly in the condition in which the association of the extrinsic eye-muscles with the faulty refractive condition in the attainment of single binocular vision is productive of symptoms of eye-strain. The evidences of eye-strain, he said, are headache, frontal or occipital, irritability, nervousness, lack of concentration, etc., and that so clearly does the child show the signs of eye-strain in its face that an experienced ophthalmologist can almost always diagnose the form of refractive error by the expression on the face of the patient. In reviewing the conditions considered at various times as the result of eye-strain, he said of migraine that it could always be modified by correction of refractive errors and many times it might be prevented, of epilepsy and insanity he said that he did not believe it could ever be cured in this way nor could paresis or paralysis be influenced. Hysterical manifestations may be modified but only by distracting the attention of the individual from the point of numbness or other abnormal condition which may be present. He did not believe that the chorea of Sydenham was ever cured by glasses, but many cases diagnosed chorea are merely cases of eye-strain in which the efforts of the patient to secure single binocular vision are productive of facial contortions which resembled the twitchings of chorea. These, of course, could be influenced by the proper treatment of ocular errors. A frequent cause of nausea and other digestive disturbances, he said, is eye-strain, and any child that has these disorders or is not up to the average in its work in school or elsewhere should be examined for refractive errors. In conclusion Dr. Claiborne said that (1) nervous symptoms of a variety of kinds occur as the result of eye-strain. (2) Eye-strain is due to refractive errors, to imbalance of the external ocular muscular system, or more frequently to a combination of the two. (3) Of these two the refractive errors are by far the more frequent cause. (4) Muscular imbalance alone may cause it. (5) Headache is by far the most common nervous symptom caused by eye-strain. (6) The headache is chronic or induced directly by near work and is generally in the forehead and temples. (7) Migraine or hemicrania due to eye-strain is comparatively rare in children. (8) Any nervous symptom in children should arouse the suspicion of ocular defects either as a direct or contributive cause. (9) Correction should be made under atropine.

(To be Continued.)

SECTION OF MATERIA MEDICA, PHARMACY AND THERAPEUTICS.

FIRST DAY—JUNE 7TH.

Dr. O. T. Osborne, of New Haven, the Chairman, delivered an address entitled "The Scourge of Nostrums and Irregular Practitioners." He made some very pointed remarks bearing upon this subject.

Federal Supervision of Drugs.—Dr. H. W. Wiley, of Washington, D. C., spoke of the steps which the Department of Agriculture had taken in establishing a laboratory for the study of drug adulterations. By this means importation frauds can be more easily detected and a means afforded for the formulation of a uniform standard of duty. He further referred to the organization of a drug laboratory in the Bureau of Chemistry for the study of foreign drug plants with a view of in-

troducing them into this country for cultivation. The cooperation of the Post Office Department in excluding fraudulent preparations from the mail was praised. He expressed the great desirability of obtaining the cooperation of the pharmaceutists in doing away with all drugs of unknown character and strength.

SECOND DAY—JUNE 8TH.

Relation of the Internal Secretions to Epilepsy, Puerperal Eclampsia and Kindred Convulsive Disorders.—Dr. C. E. Sajous, of Philadelphia, gave a brief review of the adrenal system and its functions; the pathogenesis and pathological anatomy of the above and kindred diseases together with a study of their mutual relationship. Forms of treatment suggested by the clinical experience of the writer were outlined.

Hypnotic Drugs in Mental Disease.—Dr. Alfred R. Defendorf, of Middletown, Conn., reviewed the common hypnotics in which he pointed out their respective values in the correction of the condition which indicated their use. He showed clearly how the physiological action differed with the nature of the drug.

Chronic Arterial Hypertension.—Dr. H. W. Cook, of Richmond, Va., read a paper discussing those vascular diseases which involve hypertension. He reviewed its relations to arterial sclerosis, chronic nephritis and similar diseases. Alcohol does not produce hypertension by any action of its own, but only by chronic productive inflammation in the various vascular organs of the body, whereas toxins and toxic chemicals and drugs produce an increase in tension by constriction of the vessels themselves. He spoke of an idiopathic hypertension sometimes found, the cause of which is not apparent even on careful examination. The treatment suggested was vasodilatation. This relieves the condition of hypertension only and does not cure. The nitrites, especially amyl, and sodium nitrites seem to be the most serviceable. Nitro-glycerine is uncertain in its action. Sodium nitrite has been found to lower tension for from two to four hours. The best results follow doses of one to two grains after meals. The latter has many other advantages over nitroglycerine. The transient character of the action of the nitrites was brought up in discussion, but it was held by the author that the action of the sodium nitrite is sufficiently prolonged to furnish satisfactory results in chronic cases.

Control of Internal Hemorrhage by Drugs.—Dr. T. L. Coley, of Philadelphia, said this included all forms of hemorrhage in which the bleeding points could not be reached. An important factor set down was the need of absolute bodily mental rest in cases of internal hemorrhage. The patient's great fear of the results of the hemorrhage should be controlled to aid vasodilatation, so as to decrease blood pressure. He spoke of the danger from the dislodgment of clots, by increasing the blood pressure with the stimulants administered for shock. In reviewing the various internal hemostatics now in general use, he held there was no evidence of their value as local vasoconstrictors. Adrenalin has value only when used locally. Its internal administration is contraindicated, since it has no selective action. Digitalis and ergot also are contraindicated, the latter, especially in pulmonary hemorrhage. Opium and morphine have proved of the greatest value for all forms of bleeding by their general depressing action. Ipecac has been shown to be a specific in some forms of dysentery, but the emesis it produces does not permit its use in pulmonary hemorrhage. Strychnine is only indicated in careful doses when collapse is imminent. Alcohol has no value. Normal saline solution by enteroclysis and hypodermoclysis gives the best and quickest results. While calcium chloride is good, its prolonged use may be followed by a reverse in its action. The use of gelatin by injection is uncertain, though it should not be discontinued. There is not a single internal hemostatic that is specific. Discussion brought out the great clinical value of atropine, although it is theoretically contraindicated.

Drugs Irritant to the Kidneys.—Dr. Torald Sollman, of Cleveland, said that too little is known about this class of drugs. He showed the great need of experiments, both clinical and on animals, to determine to what extent the drugs falling under this head could be used without an increased impairment of the kidneys' excretory process. He added that a drug might be serviceable even if it irritated renal epithelium if it aided in the excretion of toxic substances.

Newer Physiology of the Gastro-intestinal Canal.—Dr. L. B. Mendel, of New Haven, Conn., reviewed recent important works on this subject. He declared there was a difference between the peristaltic action of the cardiac and pyloric portions of the stomach in the digestive process, that of the cardiac region being the more active. The pylorus is stimulated to rhythmical contraction by the presence of free acid in the stomach. He spoke of the recent idea in regard to the stimulation of the digestive glands. It is thought that the quantities of the various enzymes secreted differ according to the character of the food ingested, a larger quantity of a proteid food causing an increase in the secretion of the proteolytic enzymes and vice versa. He likened it to a physiological education of the digestive glands. Presupposing these principles, the disuse and misuse of a gland are very important. He discussed the mechanism and enervation of the elementary canal and the chemical changes therein.

Etiology and Pathology of Gout.—Dr. T. B. Futcher, of Baltimore, said heredity was a very important factor in the etiology of gout. The disease is more frequent in males than in females. Alcohol in the non-distilled beverages is a more important factor than in the distilled liquors. Large amounts of nitrogenous food associated with bad hygienic measures are predisposing factors. Lead intoxication may be a cause. Gout is common in saloon keepers and brewers. It is accompanied by an excess of uric acid, which is supposed to be due to a deficient excretion by the kidney of nitrogenous materials. The condition is probably due to the circulation of the uric acid in the blood and its subsequent deposition in that part of the peri-articular cartilages farthest from the vascular supply. The alkalinity of the blood is not decreased.

Systemic Value of Radical Changes in Diet.—Dr. R. H. Chittenden, of Yale, reviewed a series of experiments conducted at New Haven during the past winter on 26 males. They represented all sorts and conditions of men. He said that heretofore experiments had dealt with the fact that people thought man required a certain amount of nitrogenous food. The results from his experiments showed that a reduction of nitrogen was beneficial rather than deleterious. He argued that if the body could get along with less nitrogenous food, the excretory tissues would not have to do as much work and they would obtain physiological rest. Must there not be some value in the resting of these processes? There is perfect safety in a lower nitrogenous diet. Subjects of the experiments did not lose weight, blood or strength, but gained in all of these. He ascribed some benefit to a more regular mode of life and exercise but made due allowance for these factors in his conclusions. The writer believed there was a gain by the physiological economy and this would relieve the kidneys and liver. He believed in a diet which decreased uric acid or its precedents, in temperance—not in prohibition.

THIRD DAY—JUNE 9TH.

Hydrastis, Some of Its Therapeutic Uses.—Dr. Blair Stewart, of Atlantic City, gave a brief historical sketch of the drug, and described its physiological action. He gave his experience with the drug which he found valuable in catarrhal conditions of the gastro-intestinal tract. He found the best results to follow very small doses given at frequent intervals. For colitis, he recommended one to six drops of the fluid extract in water before meals and cautioned those using it against prescribing it in cases of pregnant women.

Apocynum Cannabinum.—Dr. Horatio Wood, Jr., of Philadelphia, reviewed the uses of the drug and its literature. By careful pharmacological experimentation with the drug, he found its principal action was the following: It caused the heart to beat slower and stronger, and increased the blood pressure markedly. The heart regained its normal beat, but maintained a high vascular pressure. There is a rapid fall in the pressure following its discontinuance. He found the action to be due to a stimulation of the inhibitory center in the medulla, the cord not entering into the process. He compared and contrasted its action with digitalis, with which its action is quite similar. It has a pronounced diuretic action dependent upon the increased pressure. In seeking its active principle, he was led to believe that it is in the form of a glucoside. Unfortunately he has not as yet been able to decide the question.

The Specific Treatment for Tuberculosis.—Dr. Edward R. Baldwin, of Saranac Lake, N. Y., said his conclusions were drawn from experiments on animals and clinical observation. He said that he was led to believe that tuberculin acted by immunizing followed by a healing process. He found that it had very questionable value in the more acute conditions or in advanced stages of the disease. He did not discountenance its use, however, as a matter of resort, but said that it was of great value in clearing the sputum of bacilli and in completing the physical cure in chronic incipient cases; especially those cases which although apparently cured, resist the efforts of the physician in bringing the patient to that stage where he can be safely discharged from observation. The most rational tuberculin, he thought, was prepared as an emulsion of the bacilli sterilized by chemicals and not by heat, as the heat causes a destructive process. He believed that the treatment should be given periodically, with intervals of three months. The great care required in the administration and supervision of its use limited it to sanatoria. He considered any serumtherapy which has been produced to be of no use in the treatment of tuberculosis.

Progress in Actinotherapy.—Dr. William S. Gottheil, of New York, said that its use by reason of the expense and the character of the apparatus was limited to hospitals and sanatoria. He reviewed the various forms of ray and declared much had been done in the way of cures by the use of this form of treatment. A large part of the lack of success met with could be accounted for by the lack of strength of the light. The ordinary Finsen apparatus cannot be obtained in this country. The average machine sold in this country is entirely too weak to do much good, as only the very highest powers produce results, *i.e.* arcs of 50 to 100 amperes. He found the deeper results to vary inversely as the superficial ones.

Internal Medication and External Application in Pneumonia.—Dr. George Dock, of Ann Arbor, contrasted the value of the more common internal methods which had been in use for so long, with the more recent and simpler ideas. He called attention to the necessity of keeping the mouth as aseptic as possible and said that the usual bronchial and intestinal complications are best treated by means of internal medication, whereas, the best all round routine treatment for the heart and cerebral symptoms is the ice coil, ice bag, or ice bath. Although seemingly a method which is too radical, the rapid and positive relief following their use demand it from the physician.

Heart Failure in Pneumonia.—Dr. Solomon Solis-Cohen reviewed and classified the causes of heart failure as a complication and emphatically called attention to the point that the time to treat heart failure was before the failure appeared. The toxemia calls for free blood letting and diuresis. In the first stages of the disease, heat should be used to obtain diaphoresis, the rationale being to get rid of the toxins; while venesection is indicated in the latter stages for the same purpose, when the vascular system becomes weakened. Some of the more common causes of heart failure are febrile heat and its treatment, with antipyretics and cold, toxemia eliminating measures, and deficient oxygenation of the blood. He advocated the use of tincture of musk, drops five to ten, by mouth. The purity of the drug must be positively ascertained. He laid special stress upon the application of cold. If the ice-bag or coil is preceded for a minute or two by intense heat, the shock of applying the cold is diminished and the result is better. The time for the application of cold is ten to thirty minutes twice a day, or as the heart symptoms indicate. As poultices do relieve pain and give rest, they should be used. Absolute rest of the patient on his back in a passive condition is essential. The least movement is to be prohibited. Amyl nitrite and nitroglycerin are great aids in the congestion of the pulmonary circulation. The treatment could be summed up in the use of good judgment, conservatism and the immediate execution of indicated treatment.

Serum Treatment of Pneumonia.—Dr. J. M Anders, of Philadelphia, said it was the most rational treatment of the disease. Success has followed its use by some, failures by others. He showed the ueed of a more effective preparation and called attention to the necessity of a bacteriological diagnosis in pneumonia before the use of serum treatment could be carried out properly. The statistics of its use so far are of no value, as they deal with isolated cases. With those cases reported, the results have not been as good as when the patient was treated in the usual way. Summing up the ordinary treatment, its trial has been of sufficient duration to prove that it is no good, and that there is a field for a good toxin yet to be found.

Therapeutic Value of Massage in Acute Diseases.—Dr. J. W. Seaver of New Haven, Conn., reviewed the anatomy of the hemic and lymphatic circulations in both the deep and the superficial tissues, and endeavored to show the theoretical basis for the use of massage. He discussed at some length the wide field for its application and those diseases which would be most apt to respond to its use. He made a strong plea for a system of instruction in this country similar to the institutions in Sweden for the education of skilled masseurs.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

GUY'S HOSPITAL REPORTS. Volume 68. 8vo, 386 pages. J. & A. Churchill, London.

MANUAL OF CLINICAL DIAGNOSIS. By Dr. C. E. Simon. Fifth edition. 695 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.